THE ENHANCED REFERRAL PROCESS FOR GROUP DIABETES SELF-MANAGEMENT EDUCATION

A DOCTOR OF NURSING PRACTICE PROJECT SUBMITTED TO THE OFFICE OF GRADUATE EDUCATION OF THE UNIVERSITY OF HAWAIʻI AT MĀNOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF NURSING PRACTICE

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Dedication

This is dedicated to my late brother Shyne.

Acknowledgements

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Abstract

Diabetes self-management education (DSME) is an essential aspect of care that is successful in preventing or delaying complications of diabetes. However, various barriers ranging from personal to structural have led to underuse of this intervention. Since its initiation in 2015, performance data from Queen Emma Clinics (QEC) group DSME program showed low patient completion rates in the first three classes implemented. Thus, the purpose of this project was to integrate an evidence-based practice (EBP) change that would increase attendance at diabetes consultation appointments and subsequently improve patient enrollment and graduation from QEC's group DSME program.

Following the Stetler Model of Research Utilization, a quality-improvement (QI) initiative was developed, implemented, and evaluated in its achievement of two main project objectives: decrease no-show rates to diabetes consultations appointments with QEC's advanced practice registered nurse Certified Diabetes Educator (APRN CDE) and registered nurse CDE (RN CDE) and improve group DSME graduation rates. The target population for this project was adult patients with diabetes who were referred for diabetes education consultation appointments with QEC's APRN CDE and RN CDE.

Methods to assess project outcomes included collection and analysis of data produced by post-pilot and post-implementation phases. Findings from the pilot phase showed an increase in no-show rates but post-implementation data showed improvements. Results also revealed that none of the patients included in the sample were enrolled into the group DSME program as expected and analysis could not be completed for this outcome. It was concluded that the modified referral practice was effective at reducing no-shows to consultation appointments with

the APRN CDE and RN CDE; however, was not successful in addressing the objective of improving the rate of graduates from QEC's group DSME program.

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CHAPTER 1. EXECUTIVE SUMMARY

Background/Problem

Diabetes is a complex chronic condition that may progress to the development of debilitating complications if poorly controlled. Fortunately, successful management of this disease can be achieved with the adoption of self-management skills (Chrvala, Sherr, & Lipman 2015). While different health care professionals may teach DSME, this task is often entrusted in a health care professional who specializes in diabetes management and is certified to teach DSME; ensuring consistent and effective delivery of information to patients (Powers et al., 2015). Still, learning DSME is often dependent on a patient first attending an initial appointment with a diabetes educator. In the United States (U.S.), utilization of DSME remains relatively low, with only an estimated 58% of adults ever having attended a DSME class in 2014 (The Centers for Disease Control and Prevention [CDC], 2014). This low rate may be attributed to the issue of missed appointments, which varies between 15% and 30% in outpatient health clinics worldwide (McLean et al., 2016). Not surprisingly, only an estimated 55% of people with diabetes in Hawai‘i have chosen to participate in diabetes education programs (Sinclair, Makahi, Shea-Solatorio, Yoshimura, Townsend, & Kaholokula, 2012). Despite convincing evidence of its effectiveness, DSME is still underused.

Purpose

The purpose of this Doctor of Nursing Practice (DNP) QI project was two-fold: 1) to integrate an EBP change that would decrease no-show rates at scheduled consultation appointments with an APRN CDE and RN CDE, and 2) improve patient graduation rates from the group DSME program at QEC.

Conceptual Framework

The Stetler Model of Research Utilization (2001) was the framework guiding this QI project and the evidence-based approach used to implement and evaluate a practice change. The model (2001) consists of five sequential phases that is designed to assist practitioners in the facilitation of research evidence and other relevant evidence into daily practice.

Literature Review & Synthesis

With assistance from a University of Hawai‘i at Mānoa librarian, a literature search for this project was completed using PubMed, CINAHL, Google Scholar, and PsychINFO databases for evidence-based strategies that address the clinical problem of no-shows. A total of 28 articles were included. Synthesis of this literature resulted in a demonstration of the effectiveness of DSME and several strategies that are found to be effective with decreasing no-show rates and improving patient utilization of referrals. These strategies include: providing patients with more information during the referral process; reducing wait times for appointments; and using telephone reminders.

Innovation & Objectives

Based on the current referral practice for diabetes education at QEC, a modified practice algorithm was developed where education about DSME and an informational DSME brochure, and a warm handoff between a primary care provider (PCP) and APRN CDE or RN CDE were integrated. The referral process for diabetes education encourages and raises awareness about the value of DSME. Thus, the objectives of this innovation included: (1) decreasing no-shows at scheduled consultation appointments with an APRN CDE or RN CDE; (2) improving patient graduation rates in the group DSME program; and (3) enhancing the referral process to group DSME.

Methods

An EBP, QI approach was used to develop, implement, and evaluate a practice initiative at QEC which addressed the clinical problems previously described. Operated under the larger organization, Queen's Medical Center (The Queen's Medical Center [QMC], n.d.), QEC was established in 1947 with a mission to improve the health of underserved populations in Hawai'i. Focused diabetes management and education was offered by the facility's APRN CDE and RN CDE in two main forms: individual or group-based. Staff who were primarily involved with the referral process to either method included: eight PCPs, seven Medical Assistants (MAs), an APRN CDE, and a RN CDE. Additionally, resident Doctor of Medicine (MDs) who rotated through QEC's primary care department also contributed to the referral process.

With intentions of decreasing no-shows to diabetes education consultation appointments and graduating more patients from group DSME, the existing referral process was modified to include: brief information about DSME in addition to a DSME informational brochure and a warm handoff with the APRN CDE or RN CDE. This QI project targeted adult patients with diabetes (type 1 or type 2) that were seen by PCPs and Resident MDs at QEC and were referred to an APRN CDE or RN CDE for focused diabetes management and education. An open-ended sample size was chosen for patient attendance at consultation appointments with the APRN CDE or RN CDE and 20 participants was the target sample size for the group DSME program.

Data collection was completed for two measures: (1) no-show rates at a scheduled appointment with an APRN CDE or RN CDE; and (2) patient graduation rates in the group DSME program. Data for the former measure was extracted from paper referral tracking sheets while data for the latter was extracted from sign-in sheets used in the group DSME program. In addition, evaluation of process measures was used to evaluate performance of the intervention.

Results

Fourteen patients were referred during the pilot phase and 26 patients were referred during the implementation phase of this project. Collectively, there was an equal number of males and females with an average age of 53.7 years. Majority of patients were Samoan (30%) or Filipino (15%), indicated English (83%) as their preferred language, and were unemployed (75%). Data analysis revealed high no-show rates (35.7%) following a pilot of the practice change. However, post-implementation data showed improvements to this outcome (19.2%). For unanticipated reasons, none of the patients included in the sample were enrolled into the October 2017 group DSME program as projected. Thus, no analysis could be made for the outcomes of this measure.

Discussion

The purpose of this project was to increase the number of graduates from QEC's group DSME program by stimulating patient awareness of DSME in the referral process using evidence-based interventions. By doing so, it was anticipated to increase patient attendance at diabetes consultation appointments and subsequently, enrollment into the group DSME program. While data analysis showed no connection between this variable and the practice change, interpretation of findings did indicate a decrease in no-shows to diabetes consultation appointments; thus, meeting one of two objectives developed for this project.

Recommendations for future implementation of this practice include: utilizing a physician champion and nurse champion; providing regular training of the new referral process; reducing wait times between a referral and scheduled consultation visit for diabetes education; and translating the DSME brochure into other languages. Findings and conclusions of this

project will be disseminated to stakeholders and published in hopes that it may contribute to the betterment of future practices and be useful in quality improvement initiatives.

As can be expected with any QI project, there were several limitations. This project took place in a fluid environmental setting, which made it susceptible to changes. Variables, patient characteristics, and the sample size of the group DSME program could not be controlled. Furthermore, the short time period of which the practice change was piloted and implemented may have limited the extent of its adoption. Data and evaluation findings are also limited in reliability, as accurate data collection and consistent implementation of the practice change was not controlled. Other limitations included the use of untested instruments and availability of the DSME brochure in English language only.

CHAPTER 2. PROBLEM

Diabetes remains one of the leading causes of disability worldwide and is projected to be the 7th leading cause of death by 2030 (Nugent, Carson, Zammitt, Smith, & Wallston, 2015). In the U.S., approximately 25.8 million people, or 8.3% of the population, are living with this disease today and rates are expected to reach 68 million by 2030 (Burke & O'Grady, 2012). The financial burden of this disease is also significant and has costed the U.S. approximately $245 billion in 2012 (American Diabetes Association [ADA], 2015a).

Although DSME is found to be a vital component of care for people with diabetes and those at risk for developing the disease, it's value is undermined by poor utilization. Effective diabetes education is a process that takes time and often begins with meeting a health care provider who specializes in diabetes management, such as a CDE. The CDE is a valuable resource in overall management of diabetes, as they possess comprehensive diabetes knowledge and assist patients in learning necessary self-management skills using DSME (National Certification Board for Diabetes Educators [NCBDE], n.d.). However, access to DSME typically begins with a referral (Powers et al., 2015) and is dependent on patient adherence to attending a visit with a CDE.

In this chapter, the conceptual framework chosen to guide this project will be introduced and the clinical problem of poor utilization of DSME as a result of nonattendance at scheduled visits with a CDE will also be examined. Definitions of common terms used in this paper will be included. In addition, this chapter will review pertinent background information, discuss the strategies used to locate literature, and present a synthesis of the evidence. The chapter will conclude with a description of the innovation chosen for this project and a brief discussion on weaknesses, gaps, and limitations of the evidence.

Conceptual Framework

Utilization of evidence-based decision-making is an important element of quality practice. The framework chosen to guide this QI project was the Stetler Model of Research Utilization (Stetler, 2001) (Figure 1), which supports EBP by serving as a useful guide to incorporating research evidence into daily practice. Features of this model focuses on critical thinking and application of research findings at the individual practitioner level; however, it was designed for utilization by both individual providers and organizations (Schaffer, Sandau, & Diedrick, 2013). Additionally, the model demonstrates how to use evidence to create a formal change within an organization or to use research findings on an informal basis.

The Stetler model also supports practitioner expertise and assumes that organizational practices will influence the way evidence is used (Schaffer et al., 2013). Thus, it was revised in 2001 and promotes the use of internal data (i.e., quality improvement, operational, evaluation, and practitioner experience) and external data (i.e., primary research and consensus of national experts) (White, Dudley-Brown, & Terhaar, 2016).

As depicted in Figure 1, the Stetler model (2001) has five phases: (1) Preparation (define need and initiate search for evidence); (2) Validation (critique and summarize evidence); (3) Comparative evaluation and decision-making (determine what evidence to use to address identified need); (4) Translation and application (plan for the change and implement evidence-based change plan); and (5) Evaluation (determine if outcomes were achieved using the evidence).

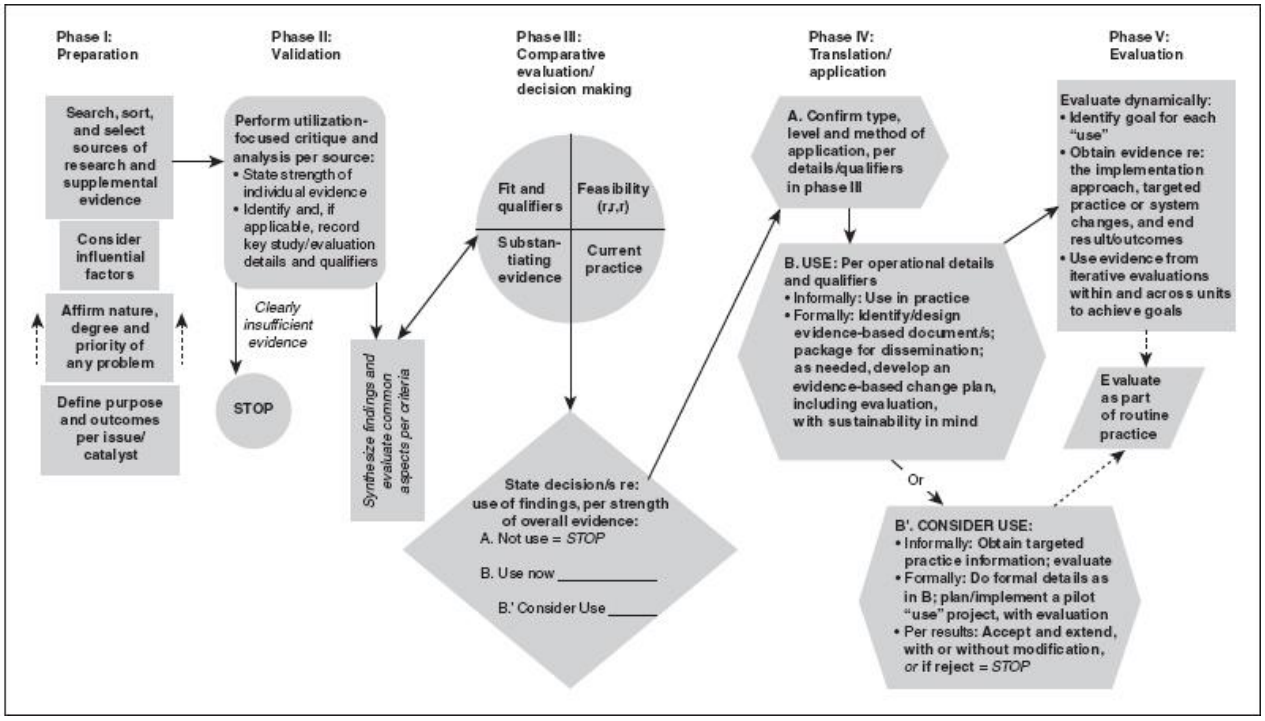

Figure 1. Stetler Model (White et al., 2016)

National Statistics

According to CDC (2014), over one million new cases of diabetes are being made each year. Despite known benefits of DSME, this intervention is still underutilized in the US (Li et al., 2014). During 2011-2012, analyzed national claim data showed an estimated 6.8% of privately insured adults participated in DSME within the first year of being diagnosed with diabetes (Li et al., 2014). Additionally, the CDC (2014) indicated that only 57.6% of U.S. adults aged 18 or older have attended a diabetes self-management class in 2014.

The issue of low participation in DSME can be also attributed to patient no-shows or missed appointments with a diabetes specialist (e.g., CDE), which in turn may prevent access to DSME. According to Mehrotra, Forrest, and Lin (2011), more than a third of U.S. patients are referred to a specialist each year, constituting more than 50% of outpatient visits. However, its

estimated that no-show rates in community practices are relatively low, ranging from 5%-55% (DuMontler, Rindfleisch, Pruszynski, & Frey III, 2013).

Hawai‘i Statistics

Diabetes is also a problem locally and is ranked as the 7th leading cause of death in Hawai‘i (ADA, n.d.). According to the Hawai‘i Department of Health (n.d.), the prevalence of adults with diabetes in the state has increased from an estimated 5% in 2000 to 8.3% in 2010. Today, approximately 13.1% of adults in Hawai‘i are living with this disease (ADA, n.d.). Analysis report data from the State of Hawai‘i Department of Health (HHDW, 2016b) indicated that 43,100 (46.9%) of 91,800 people surveyed in 2013 admitted to taking a DSME class. This data was exceeded by the number of people who denied having attended a DSME class in 2013 (48,700, 53.1%) (HHDW, 2016b). Furthermore, a 2013 survey found 5,000 out of 91,400 people surveyed (5.5%) did not see a health care provider for their diabetes (HHDW, 2016a). Overall, improvement of diabetes management remains an elusive goal for Hawai‘i’s population living with diabetes.

Definitions

The operational definition of a term is important to disclose for clarity of application to this project. For this reason, operational terms will be introduced in this section for better understanding.

Certified Diabetes Educator (CDE). This term is defined by Powers et al. (2015) as a health care professional who holds a graduate degree and is certified in diabetes management and education. Thus, the diabetes educators at QEC were referred to as APRN CDE and RN CDE in this project.

Diabetes self-management education (DSME). As the term implies, DSME is the process of facilitating knowledge, skill, and ability necessary for diabetes care (Powers et al., 2015). The overall objective of DSME is to assist patients in adopting healthier behaviors that will promote better health outcomes.

No-show. The term, no-show, is defined as a scheduled appointment that a patient either does not keep or does not cancel in time for another patient to be scheduled as a replacement Goffman et al. (2017). This term is often interchanged with "missed appointment."

Providers. The broad term, providers, is defined as a person who manages the health of patients. In terms of this project, providers at QEC included primary care providers (PCPs), resident MDs, and the APRN CDE.

Advanced Practice Registered Nurse (APRN). The term refers to a nurse with a graduate degree who possesses expert knowledge, complex decision-making skills, and clinical competencies that are necessary for expanded practice. An APRN may assess, diagnose, and manage patient problems, order tests, and prescribe medications (National Council of State Boards of Nursing [NCSBN], n.d.).

Resident Medical Doctor (MD). The term is defined as a physician who has finished medical school and is training in a specialized area of medicine (MedicineNet, 2016). Following completion of a residency program, a resident MD may obtain an unrestricted license to practice medicine.

Medical Assistant (MA). The term refers to an individual who works alongside physicians, mainly in outpatient or ambulatory facilities. The MA is cross-trained to perform administrative and clinical tasks (American Association of Medical Assistants [AAMA], n.d.)

Warm handoff. This term is defined as a transfer of care between two members of a health care team (Agency for Healthcare Research and Quality [AHRQ], 2017). This intervention is completed in the presence of a patient, which allows them to hear what is said, and provides the opportunity for engagement in communication and clarification of information.

Facility Triggers

Identified problem and knowledge focused triggers prompted the need for this QI project at QEC. Performance data indicated group DSME patient participation and graduation rates were low and improvements were needed. Further evaluation of appointment data revealed many patients were missing their initial appointments with QEC's APRN CDE and RN CDE for diabetes consultation. Thus, a second problem focused trigger emerged.

The knowledge focused trigger for this project surrounds the ADA (2015b) Recognition status, which meets the National Standards for Diabetes Self-Management Education (NSDSME). Having this recognition comes with many benefits, such as meeting Medicare reimbursement criteria, access to education materials and tools, and free program promoting resources (ADA, n.d.). Having received ADA Recognition for their DSME program from January 1, 2016 till January 1, 2020, QEC aimed to uphold this status by meeting NSDSME requirements.

Baseline Data

Queen Emma Clinics served approximately 930 patients with diabetes and began conducting group DSME classes in March 2015. To be enrolled in the group DSME program, a patient must have received a referral to meet with a CDE, who would assess their appropriateness for the program. Patient encounter data from January 1, 2017 until June 30, 2017

showed a total of 246 patients were referred to either an APRN CDE or RN CDE, but 58 (23.6%) people did not attend their appointment.

In terms of group DSME, performance data from the first three group DSME classes indicated low patient participation and completion rates, as shown in Table 1. Essentially, it was in the interest of QEC to decrease no-show rates with the APRN CDE and RN CDE appointments to increase the number of patients who participate and graduate from the group DSME program.

Table 1

Group DSME Enrollment and Completion Data

Class	Dates	Number of enrolled patients	Number of patients who completed group DSME
1	March 2015 – August 2015	15	9 (60%)
2	October 2015 – March 2016	22	16 (73%)
3	April 2016 – July 2016	14	9 (64%)

Literature Review & Synthesis

The purpose of a literature search is to locate the most relevant resources and sound evidence related to a topic of interest. This is followed by synthesis of the literature, which is necessary to draw conclusions and to identify evidence-based interventions. The strategies used to locate and evaluate gathered evidence for this project are presented in this section.

Literature search. In collaboration with a University of Hawai‘i at Mānoa librarian, an electronic search was completed using PubMed, CINAHL, Google Scholar, and PsychINFO databases. Search terms included “communication,” “compliance,” “diabetes,” “diabetes self-management education,” “engagement,” “missed appointment,” “no-show,” “office visit,” “patient attendance,” “promotion,” “referral,” “referral completion,” and “warm handoff.”

Boolean operators and Mesh terms were used for search combinations of key terms. In addition, filters were applied to include studies involving humans and adult populations (age 19 or older).

Due to a limited amount of studies on this topic, searches were not limited to articles within the last five years or to the specific disease of interest. A total of 83 articles were yielded. Studies were excluded for being duplicate studies, involving a pediatric population or vulnerable population, and not identifying facilitators or strategies that influence patient attendance or no-shows. In all, 28 articles were included in this project (see Appendix A).

Appraising the evidence. Melnyk & Fineout-Overholt's (2011) model was used to grade the level of evidence (LOE) and internal validity of each study. The quality of each study was determined by one of seven levels seen in Table 2. Level I studies are at the top of the pyramid and are considered to provide the highest level of evidence, whereas studies from Level VII provide the weakest level of evidence. The 28 studies included in this literature synthesis were ranked according to these seven levels of evidence.

Table 2

Number of Synthesized Articles According to Melnyk & Fineout-Overholt Level of Evidence Model (2011)

Level of evidence	Description	Number of articles
I	Meta-analysis	4
II	Experimental design/randomized control trial	2
III	Quasi-experimental design	0
IV	Case-controlled, cohort studies, longitudinal studies	6
V	Correlation studies	4
VI	Descriptive studies including surveys, cross-sectional design, developmental design, and qualitative studies	7
VII	Authority opinion or expert committee reports	2
Other	Performance improvement, review of literature	3

Summary of the Literature

Having gathered evidence as discussed in the previous section, the next step was synthesis of this information. The literature on the effectiveness of DSME is presented and followed by a review of evidence-based interventions that address the clinical problem of no-shows.

Effectiveness of DSME. Patients who participate in DSME are expected to benefit by learning essential behaviors namely healthy eating, self-monitoring of blood glucose, staying active, compliance with medications, using coping skills, and more. Several articles (Chrvala et al., 2015; Ghafoor, Riaz, Eichorst, Fawwad, & Basit, 2015; Powers et al., 2015; Rygg, Rise, Gronning, & Steinsbekk, 2012; Steinsbekk, Rygg, Lisulo, Rise, & Fretheim, 2012) demonstrated the effectiveness of DSME. For example, findings from a systematic review (Steinsbekk et al., 2012) found A1c values were significantly reduced, diabetes knowledge increased, and self-management skills improved by six months in participants who completed group DSME. This study did not evaluate the effect of group DSME on patient participation rates. In terms of confidence in self-care activities, Ghafoor et al. (2015) found that patients' preparedness for diabetes self-management increased from 22% before the diabetes education to 63.4% following the education. Based on this evidence, the value of DSME in overall diabetes management is apparent.

Participation in DSME is suggested to be greatly influenced by the recommendation of a provider (Kent et al., 2013; Schafer et al., 2014; Shrivastava, Shrivastava, & Ramasamy, 2013), who is typically the first point of contact for patients and the primary source of diabetes-related resources. A qualitative study by Schafer et al. (2014) interviewed patients about their thoughts towards diabetes education and found that a physician's influence was one of the most important

factors for participation. Overall, the literature validates the usefulness of DSME in improving health outcomes and endorses the influence of providers on DSME utilization.

Communication. With regard to strategies that will increase utilization of a referral, the concept of communication was strongly supported by the literature as an important facilitator (Bell & Bryant, 2013; Cox, Oliveira, Lahham, & Holland, 2017; Forrest, Shadmi, Nutting, & Starfield, 2007; Ghisi, Polyzotis, Oh, Pakosh, & Grace, 2012; Haggerty, Roberge, Freeman, & Beaulieu, 2013; Ireson, Slavova, Steltenkamp, & Scutchfield, 2009; McLean et al., 2014; Pirotte, Buckley, Lerhmann, Tanabe, & Durham, 2014; Pourhabib, Chessex, Murray, & Grace, 2016). Communication and transfer of information from provider to provider is vital to continuity of care; however, communication between providers and patients are equally important (Ireson et al., 2009).

The quality of information also contributes to referral uptake. For example, in a qualitative study that examined patients' experience with care, participants often reported wanting more information about their health condition, what to expect, treatment options, and self-management (Haggerty et al., 2013). Additionally, this study implies that patients should be provided with written information, which is essential to continuity of care and creating a sense of security. Findings from a systematic review by Cox et al. (2017) also found that 'social influence' contributed to attendance and completion of pulmonary rehabilitation following a referral. The domain of 'social influence' included the enthusiasm of a referring physician and hearing about benefits.

Communication in the referral process can be further supported with a warm handoff, which places emphasis on personal relationships and engaging patients in their care (AHRQ, 2017; Cohen et al., 2015; Horevitz, Organist, & Arean, (2015). This strategy is important as it

involves open communication in the presence of patients and allows the opportunity to verify information being communicated between two providers. Although a retrospective cohort study (Horevitz et al., 2015) found that warm handoffs negatively affected attendance to an appointment following a referral; authors of a longitudinal study (Cohen et al., 2015) suggest that warm handoffs could be used to good effect in practice. Ultimately, engaging patients in the referral process may result in a better understanding of the referral's importance and perhaps, encourage follow through.

Reducing wait times for appointments. Efforts to reduce the amount of time a patient must wait for an appointment is also shown to be effective in decreasing no-shows (Ansell, Crispo, Simard, & Bjerre, 2017; McLean et al., 2014; McMullen & Netland, 2015; Zeber, Pearson, & Smith, 2009). The literature recommends several strategies to reduce wait times, including open access scheduling, telephone consultations, and overbooking. The former method involves reserving scheduled slots for appointments ahead of time and is suggested to greatly reduce no-shows. Effectiveness of this method was demonstrated in a systematic review by Ansell et al. (2017), where results from 11 studies showed a decrease in wait time after using open access scheduling. The correlation between no-show rates and the amount of time in advance appointments are scheduled was further supported in a study by McMullen and Netland (2015), which showed a nearly 60% decrease in missed appointments just by scheduling appointments within 0-2 weeks.

Having timely access not only promotes keeping of appointments, but also improves the quality of care delivered and patient satisfaction. Based on this evidence, it is clear that increasing the short-term availability of providers may be useful to facilitating patient adherence with attending scheduled visits.

Telephone reminders. Another well-supported strategy in the literature encompasses the domain of appointment reminders (DuMontier et al., 2013; Kheirkhah, Feng, Travis, Tavakoli-Tabasi, & Sharafkhaneh, 2016; McLean et al., 2014; McLean et al., 2016; Parikh, Gupta, Wilson, Fields, Cosgrove, & Kostis, 2010; Woods, 2011; Zeber et al., 2009). Different types of reminder systems and their effectiveness on reducing missed appointments were studied, including telephone reminders (automated or manual), emails, short message reminders, and letters.

While telephone reminders were found to be the most useful, manual telephone reminders showed to be more effective than automated reminder systems in reducing no-shows (McLean et al., 2014; McLean et al., 2016; Parikh et al., 2010). This comes with no surprise, as manual telephone reminders from staff provide patients with the opportunity to cancel or reschedule their appointments instead of not showing up. Findings from a systematic review by McLean et al. (2016), showed patients who received a telephone reminder were more likely to cancel or reschedule their appointments (17%-26%) compared to those who did not receive the same service (8%-12%). Furthermore, manual telephone reminders allow for more information to be communicated or clarified by staff, which ultimately strengthens patient satisfaction and reduces barriers to keeping appointments.

Weaknesses/Gaps/Limitations

There were several limitations with evidence chosen for this project. The availability of studies discussing barriers and reasons for no-shows were abundant in the literature; however, evidence specific to decreasing no-show rates with specialty providers was relatively limited. Another limitation was the lack of available high-quality evidence. These limitations will likely affect the strength of recommendations from this project. Nonetheless, the evidence is fairly

consistent among the included studies that multiple strategies exist to influence, and support follow through with referrals.

Innovation/Objectives

Based on the preceding literature synthesis, it is evident that DSME is an essential aspect of care for all individuals with diabetes. It was also clear that keeping appointments with the APRN CDE or RN CDE at QEC was important in assisting patients to access the DSME program. Strategies to reduce appointment wait times, such as open access scheduling, telephone consultations, and overbooking was not the most effective approaches to the clinical problem, as staff members made efforts to schedule patients for the soonest available visits and telephone consultations and overbooking was not feasible for the APRN CDE and RN CDE. Additionally, both manual and automated telephone reminder calls were being done at QEC.

Although the literature review yielded lower evidence studies, the literature was compelling on the advantages of communicating more information to patients during the referral process. The literature also indicated the benefit of including other forms of communication, such as written materials and warm handoffs. Recommendations for an evidence-based change included: modifying the current referral process (see Appendix B) to DSME with the addition of provider education about DSME, providing patients with a brochure (Appendix D) that reiterated this information, and incorporation of warm handoffs from the APRN CDE or RN CDE. Thus, the practice change was intended to standardize the referral process to DSME using modifications (i.e., information, brochure, and warm handoff) to the current process.

Summary

Given the baseline rate of no-shows (23.6%) at initial visits with a CDE and low group DSME graduation rates (60%-73%) at QEC, an evidence-based change in the current practice was needed to improve these outcomes. A comprehensive account of the clinical problem was discussed in this chapter. In addition, a literature review and synthesis of the evidence were detailed, producing several EBP interventions. With consideration of feasibility for QEC's practices and the convincing evidence surrounding communication, the practice change included a modification to the current referral process that standardized the information shared with patients. Finally, this chapter presented limitations of the evidence and lack of specific innovations for referral for specialty areas in health care.

CHAPTER 3. METHODS

In Chapter 2, the identified clinical problem of high no-show rates for diabetes education appointments and subpar graduation rates from the group DSME program was introduced. Accordingly, this problem necessitated a change of current practice. This chapter will review the methods of how the chosen practice change was implemented at QEC according to the Stetler Model (2001) framework. In addition, this chapter focuses on the: objectives, design, description of the practice change, sampling plan, data collection procedures, program evaluation plan, human subjects' considerations, and limitations.

Objectives

There were two objectives of the EBP project: (1) decrease no-show rates of consultation appointments with the APRN CDE or RN CDE at QEC; and (2) increase graduation rates from the group DSME program. In accordance with these objectives, the following PICO (patient/population; intervention; comparison; outcome) question was developed: Will a modified referral algorithm and informational brochure improve patient attendance to scheduled appointments with an APRN CDE or RN CDE and increase patient graduation rates to 90% in the group DSME program in adults with diabetes at QEC?

Thus, the population (P) included the adult patients with diabetes aged 19 and over, who received health care from PCPs at QEC; the interventions (I) included education from the PCPs and resident MDs using the brochure developed by the DNP student and approved by the APRN CDE and personnel of QEC; and the warm handoff between the PCP and APRN CDE or the RN CDE on the same day the patient saw the PCP. The comparison intervention (C) was the current referral practice in the clinic, and outcomes (O) included the: decreasing of no-show rates to

appointments with the APRN CDE and RN CDE, and thus increase in patient graduation rates in the group DSME program.

Design

Evidence-based practice is integral to the success of a system or an organization and is defined as the "synthesis of new and existing knowledge and used to form the basis for practice in the health professions" (Hall & Roussel, 2012, p. xvii). The design of the practice change used in the EBP project followed the Stetler Model of Research Utilization (2001) framework. As emphasized by EBP, the Stetler Model also considers expertise and experience of the individual EBP user (Schaffer et al., 2013). The goals of EBP and the project were to integrate the best available research evidence with the existing knowledge and clinical expertise in the care delivered to patients. The EBP approach was an appropriate design to implement the practice change at QEC because the outcome was to promote a more quality DSME referral process by capitalizing on the clinical expertise of PCPs and Resident MDs at QEC who generally serve as the gateway to DSME and often have established relationships with the clinic's diabetic population.

Stetler Model. Consisting of five phases: Preparation, Validation, Comparative Evaluation/Decision Making, Translation/Application, and Evaluation, this model is useful for teams making a practice change decision. Execution of the project and its activities in keeping with the Stetler Mode (2001) are presented in Table 3.

Table 3

Project activities completed in accordance with the Stetler Model.

Stetler Model Phases & project activities
Phase I - Preparation • DNP student collaborated with the APRN CDE at QEC and project committee chair to identify the clinical problem. • A search of the literature was completed for evidence to validate the problem and to find feasible interventions. **Phase II – Validation** • PubMed, CINAHL, Google Scholar, and PsycINFO databases were searched and articles discussing strategies for improving patient no-shows were gathered and rated on quality of evidence using the Melnyk & Fineout-Overholt Model (2011). • Twenty-eight studies were evaluated, revealing several evidence-based strategies, including: communication in the referral process, reduction of wait times for an appointment, and reminder telephone calls. **Phase III – Comparative Evaluation/Decision Making** • Potential evidence-based strategies were assessed and considered for use in collaboration with the APRN CDE, RN CDE, and an MA at QEC. • Group consensus resulted in the decision to modify the current referral process using elements of communication and information, as supported by the literature. **Phase IV – Translation and Application** • Methods of using the selected evidence in current practice was collectively planned by the DNP student and APRN CDE. • Refinement of the practice change, objectives, and addition of warm handoffs was completed with assistance from a project committee chair member. • A weekly meeting and all staff meeting was utilized to inform core stakeholders at QEC of the practice change and to gather feedback. **Phase V - Evaluation** • Evaluation activities completed following post-pilot (October 2017) and post-implementation (December 2017) periods. • Pilot study results compared to baseline data and improvements made prior to implementing the practice change.

Practice Change Description (who, what, when, where, how)

The practice change planned to improve the diabetes education referral process employed by providers at QEC (see Appendix B) with the addition of several elements: brief information about DSME in addition to a DSME informational brochure (Appendix D) provided by PCPs and resident MDs; and a warm handoff with the APRN CDE or RN CDE. A standardized practice change was developed to modify the way patients were informed about DSME by providers at QEC, as displayed in the new practice flowchart in Appendix C.

Based on the determination of a PCP or resident MD to refer a patient for diabetes education, at least 1-2 minutes were spent discussing the benefits and components of DSME and emphasizing the importance of attendance at the initial consultation with the APRN CDE or RN CDE. This education piece increased the patients' awareness of what to expect in the DSME program and encouraged follow through with their appointment. Next, referred patients were provided with a DSME informational brochure (Appendix D), which served to reiterate what was discussed by the PCP or resident MD.

Warm handoffs were incorporated into this practice change and took place between a referred patient and the APRN CDE or RN CDE. If neither diabetes educator could complete a warm handoff with a patient, the DNP student served as a substitute when available to assist in achieving at least 50% warm handoffs for referred patients. This opportunity for face-to-face contact allowed patients to become more familiar with the APRN CDE or RN CDE prior to their initial visit and further enhanced the quality of the referral being made.

Characteristics of the Innovation that Influence Rate of Adoption

According to Rogers (2003) diffusion of innovations theory, an element of uncertainty needs to be overcome for adoption of an innovation to occur. It is suggested that people do not automatically adopt new ideas or products, instead they make a deliberate decision of whether to use an innovation or not (Rogers, 2003). This decision to adopt is influenced by five attributes: relative advantage; compatibility; complexity; trialability; and observability (Rogers, 2003).

Relative advantage. Relative Advantage refers to the degree to which a new innovation is perceived as more advantageous than the existing method or idea (Rogers, 2003). Patients who participate in DSME are known to benefit more when compared to patients who do not (Chrvala et al., 2016). It was expected that QEC patients who attended their diabetes consultation appointment would gain an opportunity to receive focused diabetes management and improve their health outcomes, which was the ultimate relative advantage. An additional relative advantage was the increased access and exposure to DSME that was anticipated from an improvement in no-show rates.

Compatibility. Compatibility refers to the level of agreeability that a new innovation has with potential adopters and is suggested to be more compatible and result in a higher adoption rate when attuned with existing values, needs and past experiences (Rogers, 2003). The practice change was well-fitted to the project facility and considered the current processes, budget, and needs of stakeholders at QEC. Additionally, the interventions chosen for this practice change was both feasible for staff and compatible with the workflow process at QEC.

Complexity. Rogers (2003) defined complexity as the level of difficulty to which adopters may encounter with understanding and using an innovation. The practice change was relatively clear in its purpose and did not plan to significantly alter current practices. It was anticipated to be simple and easily performed without demanding a great amount of resources or time. Challenges with performing the intervention were anticipated, for example, inability of a PCP or resident MD to finish the discussion about DSME because of time constraints or unavailability of the APRN CDE or RN CDE to complete a warm handoff with a patient.

Trialability. Trialability is another determinant to speeding diffusion rate and refers to the degree at which interventions can be experimented with on a limited basis to test out adoption (Rogers, 2003). With respect to the desired outcomes of decreased no-shows and improved patient graduation from the group DSME program, the project was trialed for two-months (August to October 2017). Piloting was intended to test the practice change, allow for revisions or improvements, and support determination of feasibility for the QEC facility and its staff.

Observability. Observability is the final characteristic identified by Rogers (2003) and suggests that innovations will likely result in quicker adoption if the benefits are easily observed and visible. The projected outcomes were considered advantageous in the sense that it was easily measurable and could be shared with stakeholders at QEC throughout the pilot and implementation period and not just after conclusion of the project. In addition, it was planned for evaluation findings to be shared with QEC stakeholders monthly to facilitate adoption of the new practice.

Plan for Sustainment

Sustainability plans was considered a priority from the very beginning of this QI initiative. The following resources and factors were considered vital to sustaining the practice change: funding, core stakeholder engagement, and education.

Funding. The DSME brochure was the only tangible material required for this project. Funding for this resource was planned to come from the Stern Trust Foundation (SSMT, n.d.) grant formerly received by QEC. Initially, plans included printing of 500 brochures for approximately $400, but it was decided that this would not be cost conscious if changes were to be made to the DSME brochure following conclusion of the project. Thus, long-term funding strategies include use of reserved and future grant money, and mindful usage of this material.

Core stakeholder engagement. Continued engagement and input of core stakeholders and leadership was essential to maintenance and improvement of the new initiative. This required regular team meetings to discuss concerns, share recommendations for improvement, and address evolving needs and expectations that could interfere with sustainability. In addition, continuous stakeholder engagement was necessary to refine the new practice change to what was feasible for QEC and its staff.

Education. Training sessions should be an ongoing process for users of the new practice. To ensure that core stakeholders have the same understanding of the process, training should also be evaluated regularly to make sure that it is useful and relevant. In addition, as staff become more confident with working with the new practice, they may be able to assist in the education and training of others.

Sampling Plan

Setting. Queen Emma Clinics was first opened in July 1947 and is operated by the QMC (n.d.) in collaboration with the College of Health Sciences at the University of Hawai‘i. By the most recent estimates, QEC served approximately 930 patients with diabetes, most of whom were identified as minority or low-income with financial and housing challenges. The QEC was dedicated to improving the care and management of its patients living with diabetes and offered DSME in two forms: individually or group based. The latter method was first offered at this clinic in March 2015 and became a preferred method of providing diabetes education to patients due to its cost effectiveness and inherent benefits (i.e., peer support). Patients enrolled in the group class were taught DSME using the Partners in Care (PIC) Curriculum (Sinclair et al., 2012), which is based on the ADA Standards of Medical Care in Diabetes (2015c) and the American Association of Diabetes Educators ([AADE], n.d.) seven self-care behaviors.

Prior to the project, there was no standardized way of providing information about DSME to patients when making a referral for diabetes education. In past group DSME classes, endeavors to enroll and successfully graduate the maximum number of 20 participants was met by low patient retention or enrollment. Possible contributing barriers included: inconvenient class scheduling, lack of transportation, and language barriers. Nonattendance at a diabetes education consultation appointment was thought to be another barrier, as access to the group DSME program required determination of eligibility by the facility’s APRN CDE or RN CDE. There were eight PCPs, seven MAs, an APRN CDE, a RN CDE, and approximately 40 resident MDs at QEC who played key roles in the referral process to DSME.

Sample size. As previously stated, patients of QEC were required to attend a consultation appointment with the facility's APRN CDE or RN CDE and meet certain requirements to be enrolled in the group DSME program. Referrals made for diabetes education were generally unpredictable; thus, an open-ended sample size was chosen for patient attendance at consultation appointments with the APRN CDE or RN CDE. Twenty participants was the target sample size for participants enrolled in the group DSME program. This target number was derived from the maximum number of patients allowed to enroll in each group DSME class.

Inclusion criteria. Adults aged 18 years and older, diagnosed with diabetes (type 1 or 2), were seen by the PCPs and resident MDs at QEC, and were referred to the APRN CDE or RN CDE for diabetes education and management were included in this project. In addition, only patients who have never been referred or established care with the APRN CDE and RN CDE were included. Based on established enrollment criteria for the group DSME program, patients were eligible to participate in this program if they met the following: able to speak and understand English; sit for three hours; have no cognitive impairment or actively taking high dose narcotic medications that may impair cognition; and complete a comprehensive diabetes education assessment with a CDE prior to the first group DSME class.

Exclusion criteria. Patients with diabetes under the age of 18 or have previously attended an appointment with either the APRN CDE or RN CDE were excluded.
In addition, referred patients were not offered the option to participate in group DSME if they did not meet enrollment requirements.

Marketing Plan

Marketing of this practice change transpired using several strategies which entailed interpersonal channels of communication (Rogers, 2003). This method of communication was most desirable for this project, as it allowed for face-to-face interaction with stakeholders and is considered most effective when trying to convince others to adopt an innovation (Rogers, 2003).

Core stakeholders. This project was initially introduced during a staff huddle involving the primary QEC stakeholders and users of this practice change and was marketed again during a staff meeting which involved all QEC staff and the use of a PowerPoint presentation to formally introduce the QI project. On both occasions, feedback and suggestions were encouraged from staff to peak interest and encourage buy in. Communication between the DNP student and stakeholders also occurred during staff huddles, informal meetings, and scheduled meetings. For example, face-to-face meetings were often scheduled with the APRN CDE to discuss the processes of this project, review the status of the project and make changes, and prepare for the next steps. Brief, informal drop-in meetings between the DNP student and QEC staff also occurred monthly.

The DNP student visited QEC weekly to assist with warm handoffs and maintain frequent face-to-face interaction with staff; using these opportunities to reinforce the practice change, request feedback/suggestions, and address staff questions or concerns. Primary care providers and resident MDs were also marketed through email. This communication strategy has the greater ability to reach a larger audience (Rogers, 2003) and was essential in creating awareness of the practice change due to the large number of resident MDs who rotated through QEC's primary care. Based on staff feedback and performance of the project during the pilot phase, marketing was increased with the posting of brightly colored posters and DSME

brochures in the primary care area of QEC. This strategy promoted awareness of this practice change and increased convenience and visibility of the DSME brochure.

Data Collection Procedures & Measurements

As shown in Table 4, specific instruments and methods were utilized to measure the outcomes of this project. A paper provider referral tracking sheet (Appendix E) was developed to collect the following variables: patient identification labels; warm handoff; attendance or non-attendance at consultation appointment with a CDE; enrollment in and graduation from October 2017 group DSME class. Group DSME graduation rates were measured using data extracted from sign in attendance sheets (Appendix F) used in the program.

Table 4

Data Collection Details

What	How	When	Who
No-show rates at scheduled visit with APRN CDE or RN CDE	Provider referral tracking sheets	• Weekly • Monthly	• DNP student & MAs • APRN CDE & DNP student
Group DSME participation & graduation rates	Sign-in/attendance sheets	October 2017 & December 2017	APRN CDE

No-shows to diabetes consultation appointments. Initial data collection of referred patients was done in real time and integrated into the existing referral process and workflow of the MAs. Each MA was assigned to assist one or two PCPs and the resident MDs working under each PCP. Upon completion of a referral, an MA placed a patient's identification label onto a provider referral tracking sheet (Appendix E), which corresponded to the referring PCP. All

referrals made by resident MDs were tracked under their respective PCP, as the name of resident MDs were not shown under the referrals made in QEC's electronic medical records (EMR) system and tracking data for each individual resident MD was not feasible. Due to the inherent nature of consultation appointments being scheduled with a CDE in the future, the remaining data collection (i.e., attendance at scheduled appointment, etc.) was completed post-implementation of this project by the APRN CDE.

Data collection methods used in the pilot phase was reapplied to the implementation phase of this project. However, due to various factors it was discovered that this activity was inconsistently performed. To alleviate this problem, data collection was extended to Patient Services Representative (PSR) staff, as recommended by staff. Current processes in place utilized PSR staff with scheduling patients for diabetes consultation appointments; thus, their added assistance with data collection was essential during the implementation period.

Group DSME graduation. Data for this variable was acquired from sign in attendance sheets (Appendix F) used in the group DSME program and was collected by the APRN CDE following pilot (October 2017) and implementation periods (December 2017). Note that enrollment into the October 2017 group DSME program closed the day before the first class. Additionally, this variable did not apply to the implementation phase data as it could not be collected and measured for the tentative January 2018 group DSME program scheduled to occur outside the timeframe of the project.

Process Variables

Measurement is essential in demonstrating current performance, as it demonstrates whether new changes are actually leading to improvement (Health Quality Ontario [HQO], 2013). Process measures are commonly used measures in health care to captures a system's

changes and efforts that contribute to the outcome measures (HQO, 2013). For this project, three process variables (Table 5) were utilized to measure performance with the practice change.

Table 5

Process Measurements

Variable type	Measure	Instruments	When
Process measures	Modified referral practice algorithm survey	DNP student developed survey via SurveyMonkey (n.d.)	August 2017 & December 2017
	Warm handoffs	Provider referral tracking sheets	Monthly
	DSME brochures	Manual count	December 2017

Modified referral practice survey. Performance of the practice change was partly measured using a 3-questions survey (Appendix H) that was developed in collaboration with the APRN CDE. It was distributed via SurveyMonkey (n.d.) to seven QEC PCPs and 49 resident MDs in October and December 2017 and captured quantitative measures of: self-reported frequency of use, time spent delivering information about DSME, and satisfaction with the brochure. Also included was the option to leave comments or suggestions. While initially planned to be administered in August and December 2017, this survey was distributed in October and December 2017 instead, to capture post-pilot and post-implementation performance.

Warm handoffs. As shown in Table 5, tracking of this data was completed using the provider referral tracking sheet (Appendix E). The practice change planned to have warm handoff data collected in real time; however, various factors (e.g., time constraints, competing priorities) prevented this. As a result, collection of this data occurred partly in real time and again post-implementation.

DSME brochures. Approximately 60 DSME brochures were provided to PCPs and resident MDs during the pilot and implementation phases of this project. The remainder brochures were manually counted by the APRN CDE following completion of the implementation phase.

Required Resources

The quality of care delivered by an organization is determined by many different factors, such as available resources. In order to implement and evaluate this EBP project, several resources were needed. The following paragraphs describe these and other resources necessary to the practice change and its future sustainment.

Budget. Interventions chosen for use in the practice change was partly done so because of its cost-effectiveness. The DNP student used personal finances and spent approximately $50 to print colored brochures. To sustain the use of this material, future funding will need to be reviewed for allocation towards printing costs.

Human/staff. Various QEC health care employees donated time to development and implementation of this project, including: eight PCPs, an APRN CDE, RN CDE, eight MAs, six PSR staff, and approximately 40 resident MDs. Additionally, other QEC personnel assisted in its evaluation processes. A resource which the project lacked and was paramount to this QI initiative was that of a project champion who could assist in driving the change.

Physical. Resources such as access to space and supplies were adequate in its ability to support this project. Thus, no additional physical space was required for this project.

Timeline

A series of project related events were planned to occur each month beginning in July 2017, as shown in Appendix G. Following a successful proposal in August 2017, this project transitioned into the pilot, implementation, and evaluation phase. Following initiation of the pilot phase in the third week of August 2017, subsequent adjustments were made as necessary. Printing of the DSME brochure by QMC's Creative Services Department was not initiated for cost-conscious reasons previously mentioned. The data collection period was extended through the month of January 2018 to better capture more data resulting from the practice change implemented. Additionally, distribution of the modified referral practice survey was deferred to October 2017 to capture post-pilot findings. Findings generated by this project was not shared with core stakeholders in January and February 2018 as initially planned but is tentatively scheduled to occur in March and April 2018.

Data Analysis

In collaboration with QEC's APRN CDE, data gathered from the sample collections were analyzed and interpreted to produce meaningful and useful conclusions. Analysis was completed for the two main outcomes of this project: no-show rate to diabetes consultation appointments and graduation rate from the group DSME program, and the process variables. Results and interpretation of this analysis in comparison to baseline data will follow in the next two chapters.

Project outcomes. No-show rates and group DSME graduation rates were calculated for both the pilot and implementation phase samples. The appointment encounter outcome (i.e., attended, no-show, cancelled, etc.) of each patient included in the samples were obtained from the EMR by the APRN CDE. The DNP student manually added the number of no-show appointments from each provider referral tracking sheet and divided it by the total number of

patients to calculate a rate. Rates for other appointment outcomes were analyzed as well. This same method was completed to calculate the graduation rate of patients enrolled in the October 2017 group DSME class using data extracted from the program's sign-in sheets. Patients were considered as graduates if they attended eight of the 10 scheduled classes. Thus, the number of patients who met this graduation criteria was divided by the total number of patients enrolled to produce a rate.

Process variables. Three variables were used to measure performance of the practice change, including: a modified referral practice survey, warm handoffs, and DSME brochures. A response rate for both post-pilot and post-implementation surveys was calculated using the method previously described. Additionally, trends in the survey results were automatically generated by SurveyMonkey (n.d.). The rate of warm handoffs completed and DSME brochures used was manually calculated by adding the number of each variable and dividing it by the total number of that variable.

Human Subjects Considerations

In keeping with QEC's mission of providing quality health care services to improve the well-being of Native Hawaiians and all the people Hawai‘i, this project was designed in consideration with ethical tenets and the protection of human subject participants. Additionally, this QI project did not violate patient or staff privacy, breach patient confidentiality, or pose an increased risk to patients, physicians, staff or associates. While not considered a research project, IRB clearance was completed with personnel of QEC. In its entirety, this project utilized the primary ethical principles of research including: autonomy, non-maleficence, beneficence, and justice (McCormick & Min, 2013). Furthermore, there was no additional risk beyond standard

practice at QEC, and in keeping with quality improvement initiatives, the activities included were intended to benefit both patients and staff.

The author/DNP student had completed the required University of Hawai‘i Collaborative Institutional Training Initiative (CITI) course in Human Subjects Protection prior to implementation. Finally, the proposal of this project was reviewed by a committee consisting of faculty and clinical experts, who are in support of ensuring adequate human subjects protection.

Limitations

As can be expected, there were several inherent limitations to this QI project. It was implemented in a fluid environmental setting and naturally conditions were susceptible to change. In addition, not all variables and patient characteristics were controlled. The measured outcome of graduation from the group DSME program was affected by the number of participants, which could change at any time due to patients stopping or unenrolling from the program. In addition to these limitations of risk adjustment, the total four-month pilot and implementation phases may have been inadequate to fully engage staff and support adoption of the practice change.

Data and evaluation findings were also limited in reliability, as there was no definite way of ensuring thorough data collection and consistent implementation of the practice change. This limitation in addition to the use of untested instruments may limit the interpretation of the findings. Finally, limiting the brochure to English may have prevented patients with limited understanding of this language from obtaining the full benefit of the practice change.

Summary

The purpose of this EBP QI project was to decrease no-show rates at scheduled consultation appointments with an APRN CDE or RN CDE and to improve patient graduation rates in the group DSME program at QEC. Chapter 3 presented the objectives of this QI project and introduced the practice change including characteristics that were influential to its adoption. Design of the practice change following the Stetler Model (2001), the sampling plan and procedures used to collect and analyze data was also included. Finally, this chapter concluded with a review of human subjects' considerations and described limitations.

CHAPTER 4. RESULTS

Objectives

The objectives of this QI initiative were two-fold: to decrease no-show rates for consultation appointments with QEC's APRN CDE and RN CDE; and to improve graduation rates from the facility's group DSME program. A trend of substandard process and performance data called for a change in practice. Closer evaluation revealed that no standardized process was in place when referring patients for diabetes education and management and consequently, patients were delaying or missing out on learning DSME. Thus, an EBP change was consecutively piloted and implemented for four-months at QEC. By integrating the interventions previously described in Chapter 3, this project aspired to improve the existing referral process and empower patients in their decision to receive DSME. The outcomes and findings of this QI project are discussed in this chapter.

Description of Sample

Fourteen patients were referred during the pilot phase and 26 patients were referred during the implementation phase of this project. Collectively, a total of 40 patients were referred for diabetes education consultation appointments at QEC. There was an equal number of males (50%) and females (50%) with an average age of 53.7 years. The two most self-reported races included Samoan (30%) and Filipino (15%) and majority of patients indicated English (83%) as their preferred language. Furthermore, 30 (75%) of patients were unemployed and 10 (25%) patients were employed.

No-shows to diabetes consultation appointments. As shown in Table 6, five (35.7%) of 14 patients did not no-show to their appointments in the pilot phase and five (19.2%) no-showed after the practice change was implemented. Also shown in Table 6 are other outcomes that

resulted following referrals made by PCPs, including: no consultation appointment scheduled, cancellation of consultation appointment, and future consultation appointments. Note that future appointments were scheduled to occur outside the timeframe of this project and could not be accounted for, as shown in Table 6.

Table 6

Appointment outcomes following referrals for diabetes education

Project Phase & number of referrals	No-show	Attended	Cancelled	No appointment	Future appointment
Pilot 14 referrals	5 (35.7%)	9 (64.2%)	0	0	0
Implementation 26 referrals	5 (19.2%)	9 (34.6%)	5 (19.2%)	1 (3.8%)	6 (23%)

Group DSME graduation. None of the 40 referred patients were enrolled into the October 2017 group DSME class; thus, no relationship to this outcome could be inferred. However, 12 patients were enrolled and 6 (50%) graduated.

Trend Analysis of Process Variables

Modified referral practice survey. Performance of the modified referral practice change by PCPs and resident MDs was evaluated using a 3-question survey (Appendix H). The survey was distributed to seven QEC PCPs and 49 resident MDs in October and December 2017 to capture post-pilot and post-implementation performance. The purpose was to assess for improvement in carrying out the practice change after it was piloted. As seen in Table 7, ten (18%) people responded to the post-pilot survey and six (11%) people responded to the post-implementation survey.

In both surveys, majority of respondents indicated that they did not provide a DSME brochure to patients (60% and 66.7%). The average amount of time spent discussing DSME with patients prior to completing a referral was 1-2 minutes (60%) but increased to more than 4 minutes (66.7%) after implementing the practice change. Five (50%) post-pilot survey respondents rated the value of the DSME brochure as 'excellent' and three (50%) post-implementation survey respondents rated it as 'average.' Responses to open-ended comments and/or suggestions revealed unawareness of the DSME brochure.

Table 7

Results of post-pilot and post-implementation modified referral practice surveys

Questions	Post-Pilot Survey	Post-Implementation Survey
Indicated role	PCPs – 2 Resident MDs – 8	PCPs – 2 Resident MDs - 4
Percentage of time a DSME brochure was provided to patients	0% - 6 (60%) < 20% - 3 (30%) 20-40% - 1 (10%) 40-60% - 0 60-80% - 0 80-100% - 0	0% - 4 (66.7%) < 20% - 1 (16.67%) 20-40% - 0 40-60% - 0 60-80% - 0 80-100% - 1 (16.67%)
Average time spent talking about DSME prior to referral	< 1 minute – 1 (10%) 1-2 minutes – 6 (60%) 3-4 minutes – 1 (10%) 4+ minutes – 2 (20%)	< 1 minute – 0 1-2 minutes – 1 (16.67%) 3-4 minutes – 1 (16.67%) 4+ minutes – 4 (66.67%)
Rated value of DSME brochure	Excellent – 5 (50%) Above Average – 2 (20%) Average – 1 (10%) Below Average – 2 (20%) Poor – 0	Excellent – 1 (16.67%) Above Average – 4 (16.67%) Average – 3 (50%) Below Average – 1 (16.67%) Poor – 0

Warm handoffs. The frequency of warm handoffs was measured using provider referral tracking sheets (Appendix E). Of the 14 patients referred in the pilot period, six (42.8%) received a warm handoff. This rate decreased in the implementation phase when only six (23%) of 26 referred patients received this intervention. Interestingly, data from both periods revealed three (60%) out of 5 patients who did not show to their appointment also did not receive a warm handoff.

DSME brochures. Sixty DSME brochures were printed for use during the pilot and implementation phases of this project. A manual post-implementation count showed 14 extra brochures. Thus, 46 DSME brochures were used in the practice change.

Evolution of Project

Expected versus actual outcomes. There were two main objectives of this project. The first objective was to decrease no-show rates at consultation appointments with QEC's APRN CDE and RN CDE. It was expected that no-show rates would decrease with modifications made to the current referral process and initially pilot results showed an increased rate of no-shows compared to the baseline no-show rate. More education and marketing were applied to boost the practice change and implementation continued in October 2017. Data that followed showed a decrease of no-show rates.

Tracking referrals was initially tasked to MAs but was extended to include assistance from PSR staff; a more thorough method to completing this activity. While anticipated to be simple, thorough tracking of referrals was opposed by several factors, including: the number of providers making referrals and inherent number of staff tracking, organizational changes (i.e., 10% employee cut, rescheduling no-show appointments, discontinuation of manual appointment

reminder phone calls), and competing priorities. As a result, this data collection method did not capture all referrals made by PCPs.

The second objective was to improve patient graduation rates in the group DSME program. Piloting of this project began in August 2017 with the intent of exposing referred patients to the intervention and enrolling them into the October 2017 group DSME class. However, due to either declining an offer to attend group DSME or ineligibility, none of the referred patients were enrolled in this class.

Facilitators. Core stakeholders and other staff at QEC were fundamental in facilitating this practice change and their vested interest in ensuring QEC's patients receive adequate diabetes care and management resulted in favorable reception to this project. Recommendations from providers and other staff assisted in the refinement and improvement of processes used. In addition, the APRN CDE's expertise with QI projects was a valuable asset to the guidance of this project. Other facilitators included having all users of this practice change in one facility and integrating evidence-based interventions into an existing referral workflow.

Barriers. The greatest barrier was the lack of a "champion" who was committed to the desired outcomes of this project and could assist with its implementation. The intended champion was an RN and member of the diabetes team, who resigned from QEC and it was not suitable to task this responsibility to the new RN who filled this position. Additionally, providing education about this project and promoting the adoption of this practice change among the large number of resident MDs was limited. In addition to being new to QEC, rotating schedules, and availability were barriers to employing interpersonal communication and fostering rapport. Furthermore, the DSME brochure was only available in English language, making it less

advantageous to the majority population served at QEC and limiting the effectiveness of the practice change.

Summary

In conclusion Chapter 4 presented the project objectives, description of the sample including data findings, and discussed trend analysis of the process measures. An overview of the evolution of this project was also described, including the expected and actual outcomes, project facilitators, and barriers. The practice change implemented at QEC aimed to address the clinical need of decreasing no-show rates of consultation appointments with the facility's APRN CDE and RN CDE and to improve graduation rates from the group DSME program. No effect was found on the latter outcome and no-show rates following the pilot of this project were high. However, implementation continued with improvements to education, marketing, and data tracking processes, showing to be effective at decreasing no-show rates.

CHAPTER 5. DISCUSSION

Interpretation of Findings

Evidence-based interventions were integrated into the present diabetes education referral process and implemented at QEC following the Stetler Model (Stetler, 2001). Post-pilot data trends demonstrated an increase in no-show rates to diabetes consultation appointments and no correlation to the October 2017 group DSME class. However, improvements were made to the project and continued with implementation. Subsequent findings demonstrated a decrease in no-show rates and revealed areas for future improvements. This Chapter is dedicated to the discussion and interpretation of the project outcomes, recommendations for practice, and plans for dissemination.

Diabetes consultation appointments. A final post-implementation data collection yielded a no-show rate of 19.2%, which is lower than the historical no-show rate of 23.6% for diabetes consultation appointments. This was significantly different, especially compared to post-pilot data which demonstrated an increase (35.7%) of no-shows. This may, in part, be due to the small pilot sample size and improvements made (i.e., increased marketing, education, and refined data collection process) to the practice change. As previously discussed, organizational changes (i.e., rescheduling no-show appointments) may have also attributed to this outcome.

There was no determined time frame for which patients were instructed to attend a diabetes education consultation appointment; thereby, increasing the chance for no-shows. In fact, majority of patients were scheduled for appointments at least one month from when they were referred by their PCP. It was also common for patients to reschedule their appointments further out from the original date, which resulted in no-shows on several occasions. Inadequate awareness of the project may have also had a subsequent effect on no-show rates. Additionally,

the DSME brochure was limited to English language; a drawback to the overall effectiveness of the practice change.

Group DSME graduation. Findings of this outcome could not be connected to this project and may have resulted from missed tracking as previously mentioned. Incentives such as free lunch and raffle prizes have been utilized for some time in effort to retain and graduate more patients from the group DSME program. However, a low graduation rate (50%) from the October 2017 group DSME program suggests barriers were still present and an evidence-based solution is needed in motivating patients to consistently engage in the program.

Process variables. The following variables were measured to evaluate performance of the practice change: modified referral practice survey, warm handoffs, and DSME brochures. Low response rates and performance results indicated by the modified referral practice survey may be contributed to (1) a lack of awareness of the project, and (2) challenges in engaging PCPs and resident MDs. Due to the nature of the clinic and large asynchronous number of resident MDs present at QEC, marketing and communication with this group of stakeholders occurred primarily through email; a communication channel that is less favorable when promoting the adoption of a new practice (Rogers, 2003). While the DSME brochure and warm handoff assisted in improving the quality of referrals, the formerly mentioned reasons may have influenced its outcome. Inadequate time was commonly expressed regarding the underutilization of warm handoffs. Additionally, a manual count of DSME brochures was not the most effective method to measure efficiency.

Implications/Recommendations

Recommendations for implementing and sustaining this practice change include utilizing a physician and nurse champion to guide and oversee consistency in its performance. Providing regular training will also be essential to ensure the learning and information needs of staff are met. This will also ensure resident MDs who are rotating through QEC are familiar and current with the referral process. Based on the project findings, it is also recommended that wait times between a referral and consultation visit with the APRN CDE or RN CDE be reduced to deter no-shows. Translation of the DSME brochure to QEC's top three preferred languages (Chuukese, Marshallese, and Samoan) will also be ideal to impacting a larger number of patients.

The primary implication of the project outcomes will be to share this information with QEC and external stakeholders in pursuit of application toward future practice changes and QI efforts. While external stakeholders did not have an active role in this project, they are entities who have a legitimate interest in the performance of QEC's group DSME program. As active organizations in the community, the ADA Education Recognition Program (ADA, 2015b), Stern Trust Foundation (SSMT, n.d.), and Ulu Network Community Fund (CNPHDR, n.d.) care about the positive contribution QEC provides to the community.

DNP Essentials

The Doctor of Nursing Practice (DNP) degree is a practice-focused terminal degree that prepares the Advanced Practice Nurse (APN) to develop knowledge necessary for practice in the growing complexity of today's healthcare environment (American Association of Colleges of Nurses [AACN], 2006). Eight DNP Essentials developed by the AACN (2006) define the curricular fundamentals and competencies that are necessary in DNP programs. Examples of how the evidence-based project integrated these DNP Essentials are presented in Table 8.

Table 8

Project examples demonstrating incorporation of the eight DNP Essentials

DNP Essentials and examples
Essential I: Scientific Underpinnings for Practice • Through the integration of scientific underpinnings, the DNP student assisted in the design, implementation, and evaluation of a new practice approach that intended to advance patient care and improve the health outcomes of underserved populations affected by diabetes **Essential II: Organizational & Systems Leadership for QI & Economics** • Assessment of current practice and procedures was exercised to develop and integrate evidence-based changes into the existing referral process at QEC. **Essential III: Evidence-Based Practice/Translation Science** • This scholarly project required evaluation of existing literature to determine best practices and to guide an evidence-based nursing practice change that attempted to address the clinical problems of high no-show rates of diabetes education consultation appointments and low graduation rates from QEC's group DSME program. **Essential IV: Information Systems/Technology** • Data mining for patient demographics occurred using the EHR system operated at QEC and was essential to supporting data accuracy. **Essential V: Health Care Policy & Ethics** • Development of this project was propelled by the need to address the clinical problems partly identified by performance data and to ensure referring procedures utilized by QEC providers were optimized to improve care outcomes of patients with diabetes. **Essential VI: Interprofessional Collaboration** • The practice change implemented by this project required collaboration and teamwork by a variety of specialties including: primary care physicians, resident physicians, nurses, medical assistants, and clerical staff to ensure quality patient care and timely, efficient access to further diabetes education and management. **Essential VII: Prevention and Population Health** • Findings from this project may assist in future endeavors to build upon practices which improve access to focused diabetes management among the underserved populations. • The disposition of this practice change demonstrates the intent to promote health and mitigate illness and injury in patients with diabetes. **Essential VIII: Advanced Nursing Practice & Education** • Education as an advanced prepared nurse provided the DNP student with the necessary skills to establish relationships with healthcare professionals at QEC and to work collaboratively to facilitate evidence-based interventions needed to optimize the current diabetes education referral process.

Plans for Dissemination

Results produced by this evaluation will be shared with users and stakeholders using oral presentations, formal written report, and publication of this final paper. A planned PowerPoint presentation is tentatively scheduled to occur at QEC's all staff meeting in April 2018 and at the facility's annual ADA Recognition Program (ADA, 2015b) board meeting. During this time, stakeholders will be provided with a 1-page executive summary of the project, outcomes, and recommendations based on these outcomes. There are also plans to report project findings to external stakeholders, the Ulu Network Community Fund (CNPHDR, n.d.) and Stern Trust Foundation (SSMT, n.d.), using a short briefing that summarizes the project's work. Furthermore, publication of this paper is expected to take place by the end of 2018.

Summary

In conclusion, Chapter 5 interpreted findings of the referral practice change implemented at QEC and discussed recommendations and implications in accordance with the findings. Integration of evidence-based communication strategies showed to be effective at reducing no-shows with diabetes education consultation appointments; however, interpretations could not be made for the group DSME program. Essentially, the practice change assisted in refinement of the PCPs or resident MDs recommendation to receive focused diabetes education and management. The AACN (2006) *Essentials of Doctoral Education for Advanced Nursing Practice* was also introduced and examples of how the QI project incorporated the essentials was included. Finally, plans for disseminating conclusions were described in effort of contributing to the initiative of reducing underutilization of DSME and improving health outcomes of patients living with diabetes.

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Appendix A

Literature Matrix

Author(s)	Year	Journal	Manuscript Title	Research Question	Study Design	Sample	Data Collection	Findings	Comments	Level of Evidence
Chrvala, C., Sherr, D., & Lipman, R.	2016	*Patient Education and Counseling, 99, 926-943*	Diabetes self-management education for adults with type 2 diabetes mellitus: A systematic review of the effect on glycemic control.	Assess effect of diabetes self-management education and support methods, providers, duration, and contact time on glycemic control in adult, type 2 diabetics.	Systematic Review	N/A	Databases searched: MEDLINE (PubMed), CINAHL, EMBASE, Educational Resources Information Center, and PsychINFO. Studies restricted to RCTs. Total of 120 studies included.	- 61.9% of self-management interventions reported significant changes in A1c. Overall mean reduction in A1c was 0.74 and 0.17 for intervention and control groups. - Combination of group and individual engagement results in largest decreases in A1C (0.88). - Contact hours > 10 hours associated with greater proportion of interventions and significant reduction in A1c (70.3%) - In patients with persistently elevated A1c (> 9%), greater proportion of studies reported statistically significant reduction in A1c (83.9%).	- Large systematic review. Robust data supporting significant decrease in A1c levels with diabetes self-management education. - 86% of interventions based on combination DSME demonstrated significant improvements in A1C, which is higher than group, individual, or remote modes of DSME delivery. - 69.6% of team interventions demonstrated improvement in A1c levels compared with 56.3% of DSME interventions carried out by solo provider.	Level I
Ghafoor, E., Riaz, M., Eichorst, B., Fawwad, A., & Basit, A.	2015	*Diabetes Spectrum, 28(4), 230-235*	Evaluation of diabetes conversation map education tools for diabetes self-management education.	Evaluate the efficacy of Diabetes Conversation Maps education tools for people with type 2 diabetes attending a diabetes self-management education program	Cross-sectional study	172 participants	Four 60- to 90- minute sessions held over a 4-week periods with groups of 9-1 participants using one of four different Diabetes Conversation Maps at each sessions. Participants completed a questionnaire before and after completing the fourth and final session.	52.3% of participants believed their doctor is the most influential person in the management of their type 2 diabetes. After the session 97.% acknowledged that they were responsible for diabetes self-management	LIMITATIONS: no control group for comparison; pre- and post-session questionnaires not validated	Level IV
Kent, D., Melkus, G., Stuart, P., McKoy, J., Urbanski, P., Boren, S.,…Lipman, R.	2013	*Population Health Management, 16(2), 74-81.*	Reducing the risks of diabetes complications through diabetes self-management education and support.	Purpose: Develop practical advice for diabetes educators and other members of the diabetes care team regarding the reduction of diabetes-related risks.	Literature Review	N/A	Methods unknown	Patient direction decision making associated with better understanding of diabetes self-management and self-care practices + increased satisfaction with care. poor adherence often is linked to problems with accessing preventive services because of financial barriers, transportation issues, advanced age, disabilities, competing family issues, and competing	To promote prevention and reduction of diabetes-related complications and comorbidities, diabetes educators must convey to patients the trajectory of disease progression and the importance of making proactive decisions. To do so, tailor the information provided to meet the patient's needs and current situation LIMITATION: methods for collecting evidence not discussed; types and quality of evidence unknown	Other: LR

Powers, M., Bardsley, J., Cypress, M., Duker, P., Funnell, M., Fischl, A.,... Vivian, E.	2015	*Diabetes Care, 38(7), 1372-1382.*	Diabetes self-management education and support in type 2 diabetes: A joint position statement of the American Diabetes Association, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics	Goals of position statement: Improve the patient experience of care and education, improve the health of individuals and populations, reduce diabetes-associated per capita health care costs	Authority opinion	N/A	N/A	- Diabetes education algorithm provides an evidence-based visual depiction of when to identify and refer individuals with type 2 diabetes to DSME/S - DSME is critical in effective self-management - Despite proven benefits, the number of patients who are referred to and receive DSME/S are small		Level VII
Rygg, L., Rise, M., Gronning, K., & Steinsbekk, A.	2012	*Patient Education and Counseling, 86, 98-105.*	Efficacy of ongoing group based diabetes self-management education for patients with type 2 diabetes mellitus.	Evaluate the efficacy of ongoing group based diabetes self-management education (DSME) for patients with type 2 diabetes	Randomised controlled trial	Total = 146 participants. Intervention group (n=73). Control group (n=73)	Participants were type 2 diabetics, 18 years or older, did not attend diabetes education program in previous 12 months. Two hospitals carried out intervention. Outcomes measured at 6 and 12 months: Weight, height, A1C, lipid profiles, patient activation measure (PAM) questionnaire. Quality of life measured with SF36, psychosocial distress measured with PAID, treatment satisfaction with DTSQ, diabetes knowledge measured with 12-item questionnaire.	No statistically significant effect between groups on A1c level but control group had significant worsening of A1c level from baseline to 12 months of 0.3% points ($p = 0.032$) - Control group maintained baseline level ($p = 0.332$) - Intervention group showed significant higher levels of diabetes knowledge at 6 and 12 months compared to control. - Intervention group had significantly higher ($p = 0.002$) value of regular self-inspection of feet at 12 months compared to control. - Intervention group had significant change from baseline to 12 months in proportion of participants who avoided fatty foods ($p = 0.027$) and self-monitored blood glucose ($p = 0.027$), while no changes in control group ($p = 0.185$ and $p = 0.482$)	- Teams who administered the intervention and person who collected data were not blinded to group allocation. - Authors suggest improvement in A1c with DSME is associated with higher baseline A1c levels. - Patient reported reasons for attending DSME were 'insecurity' and 'experiencing practical problems'	Level II

Schafer, I., Pawels, M., Kuver, C., Pohontsch, N., Scherer, M., Bussche, H. & Kaduszkiewicz, H.	2014	*PLoS ONE, 9(4).*	Strategies for improving participation in diabetes education. A qualitative study	Look at the patients' attitudes towards diabetes education in order to identify barriers that were not covered by the literature.	Qualitative Study	7 General Practitioner Practices, 18 participants	Semi-structured face-to-face interview by family physician or psychologist.	Barriers Theme 1: Physician's Influence - Patients' perceptions of statements and behaviour of the attending physician influence the patient's' decisions about diabetes education. Theme 2: State of health condition - Good state of health regarding diabetes and physical or psychosocial comorbidity is a reason for their non-participation - At the moment the diabetes seems to have no negative consequences Theme 3: Avoidance and refusal -Gave their own diabetes a low priority Theme 4: Knowledge and activity - lacking knowledge about diabetes education that lead to prejudices undermining their motivation to attend. - Patients lacking knowledge about diabetes education and did not know what happens during education and so made negative assumptions - Patients feels they already know enough	- Physicians interested in motivating patients for diabetes education should explicitly encourage patients to participate in diabetes education even if diabetes treatment and examination results are promising. LIMITATIONS: - Small sample size - No blinding - Data is based on self-perception	Level VI
Shrivastava, S., Shrivastava, P., & Ramasamy, J.	2013	*Journal of Diabetes & Metabolic Disorders 2013, 12(14).*	Role of self-care in management of diabetes mellitus.	Discuss the importance	Literature Review	N/A	Methods unknown	Providers and educators should evaluate perceived patient barriers to self-care behaviors and make recommendations with these in mind.	IMPLICATIONS FOR PRACTICE: Clinician should recognize patients who are prone to non-compliance and give special attention to them. LIMITATION: methods for collecting evidence not discussed; types and quality of evidence unknown	Other: LR
Steinsbekk, A., Rygg, L., Lisulo, M., Rise, M., & Fretheim, A.	2012	*BioMed Central Health Services Research, 12(213)*	Group based diabetes self-management education compared to routine treatment for people with type 2 diabetes mellitus. A systematic review with meta-analysis	Assess effects of group-based diabetes self-management education (DSME) compared to routine treatment on clinical, lifestyle, and psychosocial outcomes in type-2 diabetes patients.	Systematic review of RCTs with meta-analysis	N/A	Databases searched: Ovid MEDLINE, The Cochrane Library, EMBASE, ERIC and PsychINFO from 2003 to week 2 in 2008. Handsearch of reference lists of articles and other reviews, and contact with field experts. Total of 21 RCT studies included.	- HbA1c was significantly reduced at 6 months (0.44% points, 13 studies, $p = 0.0006$), 12 months (0.46% points, 11 studies, $p = 0.001$), and 2 years (0.87%, 3 studies, $p < 0.00001$). - Fasting blood glucose levels significantly reduced at 12 months (1.26 mmol/l, 5 studies, $p < 0.00001$) but not 6 months. - Self-management skills improved significantly at 6 months ($p = 0.01$, 4 studies). - Significant improvement in empowerment/self-efficacy ($p = 0.01$, 2 studies) after 6 months. - Secondary outcomes included improvement in patient satisfaction and body weight at 12 months for intervention group.	- All studies (except 2) reported educators were all health professionals. Educators varied, including physicians, dietitians, nurses, nutritionists, diabetes specialist nurses. - Smallest group consisted of 5 to 8 patients and the largest comprised 40 patients per session. - DSME duration varied. - 12 studies had moderate risk for bias and 7 studies classified as high risk for bias.	Level I

Author(s)	Year	Journal	Manuscript Title	Research Question	Study Design	Sample	Data Collection	Findings	Comments	Level of Evidence
Ansell, D., Crispo, J., Simard, B., & Bjerre, L.	2017	BMC Health Services Research, 17(295)	Interventions to reduce wait times for primary care appointments: A systematic review	Systematically review the literature to identify interventions designed to reduce wait times for primary care appointments	Systematic Review	11 studies	Two review authors independently screened titles and abstracts of all studies identified. Studies that met inclusion criteria were screened a second time.	- All 11 studies reported open access scheduling as an - 2 studies reported using nurse practitioners, telephone follow-up consultations, specific measures to reduce follow-up, general practitioner triage, nurse triage, redirecting workload from GPs, measures to promote self-care, email consultations. '- All studies showed a reduced wait time after implementing an intervention. Mean reduction of 11.3 days. '- 3 studies showed increase in patient satisfaction. '- No show 'rates in four studies decreased after implementation of open access scheduling.	All articles systematically appraised using a double-blinded reviewer process. Limitations: grey literature not searched, authors of existing studies or other experts were not contacted, only studies in English or French were included.	Level V
Bell & Bryant	2013	Journal of Nutrition Education & Behavior.45(6), 739-744.	Determinants of Nutrition Appointment Attendance Among Male Veterans Attending Veterans Health Administration Clinics.	Identify the determinants of appointment attendance among veterans scheduled for outpatient nutrition appointments	Mixed-methods	349 patient surveys	Surveys mailed to all patients scheduled for nutrition appointments. Individual, semi-structured interviews elicited patient opinions related to appointment attendance. Questions focused on how the appointment was scheduled, reasons for missing or attending the appointment, expectations and feelings related to the nutrition appointment, and social influences. Interviews were audio recorded and key quotes transcribed.	6 themes resulted for missed appointments: travel difficulty, forgetting the appointment, competing demands, scheduling difficulty, knowledge not new or useful, and lack of provider support. Analysis of surveys indicated that past attendance history, health status, and participation in the referral and scheduling process correlated with appointment attendance ($p < .05$).	Women and younger veterans were underrepresented in this study	Level VI
Cox, Oliveira, Lahham, & Holland	2017	*Journal of Physiotherapy, 63(2), 84-93*	Pulmonary rehabilitation referral and participation are commonly influenced by environment, knowledge, and beliefs about consequences: a systematic review using the Theoretical Domains Framework	What are the barriers and enablers of referral, uptake, attendance, and completion of pulmonary rehabilitation for people with chronic obstructive pulmonary disease (COPD)?	Systematic Review of qualitative or quantitative studies	48 studies	Two reviewers independently extracted data using a standardised data collection form, which encompassed details of the study design, participants, methods, outcome measures, and results. Data extraction occurred in two stages and were mapped to 14 domains of the Theoretical Domains Framework (TDF)	The most common domain influencing attendance and completion in pulmonary rehabilitation was 'Environment' (33/48 studies), which included items such as waiting time, burden of illness, travel, transport, and health system resources. The 'Social Influences' domain was the second most frequent domain relating to attendance and completion of pulmonary rehabilitation, which included the enthusiasm of the referring doctor; hearing about benefits from friends, family, and health professionals, cultural influences, and the value placed on other activities that would be missed if attending pulmonary rehabilitation. Other frequently represented domains related to referral was where 'Knowledge' (18/48 studies), which included clinician knowledge of referral processes, patient understanding of rehabilitation content and 'Beliefs about consequences' (15/48 studies), which included beliefs regarding role and safety of exercise, expectations of rehabilitation outcomes.	Included studies were conducted in a large variety of settings and locations, giving a good representation.	Level V

DuMontier, C., Rindfleisch, K., Pruszynski, J., & Frey III, J	2013	*Family Medicine, 45(9), 634-641*	A multi-method intervention to reduce no-shows in an urban residency clinic.	Assess the effectiveness of a multi-method intervention aimed at decreasing no-show rate	Mixed-methods (Cohort & SR)	141 no-show patients; this sample included patients who missed six or more appointments in an 18-month period from May 2007 to June 2008 at a family medical center.	- A systematic review was completed to identify an approach to decreasing no-show appointments. A three-stage process was implemented and included, an interview with the patients with the highest number of repeated no-show appointments, a double booking process for patients with a history of frequent missed appointments, and a change in the schedule to a modified advanced access schedule. - All data collected from the family medical center's data warehouse. No show rates and the proportion of active patients were collected.	- After the intervention, the no-show rate decreased from 33.3% to 17.7% and the overall clinic no-show rate fell from 10% to 7%	LIMITATIONS: this study was limited to one site; results may have been affected by site-specific factors. Poor generalizability due to turnover rate inherent with residency teaching clinic	Level IV
Forrest, C. B., Shadmi, E., Nutting, P. A., & Starfield, B	2007	*Annals of Family Medicine, 5(4), 361–367*	Specialty Referral Completion Among Primary Care Patients: Results from the ASPN referral study.	Describe referral completion from the perspectives of patients and primary care physicians and identify predictors of adherence to the referral recommendation	Cohort study	776 patients referred from 133 physicians in 81 practices and 30 states.	Referring physicians and patients completed self-administered questionnaires at the time of referral decision and 3 months later.	- patients and physicians agreed on referral completion for 79.3% (615 of 776 patients). - Most common reasons for not completing a referral were "lack of time" and patient beliefs the "health problem had resolved."	Authors suggest referral completion rates may be increased by assisting patients with scheduling their specialty appointments and promoting continuity of care	Level IV
Ghisi, G., Polyzotis, P., Oh, P., Pakosh, M., & Grace, S	2012	*Clinical Cardiology, 36(6), 323-335*	Physician factors affecting cardiac rehabilitation referral and patient enrollment: A systematic Review	Objective of this study was to qualitatively and systematically review the literature investigating physician factors related to cardiac rehabilitation referral and enrollment.	Systematic Review of descriptive studies	17 studies	Data extraction was completed by a single reviewer and checked by a second reviewer. The Downs and Black scale was used to assess the quality of the studies	- Physician factors associated with patient enrollment in cardiac rehabilitation were physician endorsement, medical specialty, being referred, and physician attitudes	LIMITATIONS: included studies were limited in sample, design, and measurement; many studies were cross-sectional, making causal conclusions impossible.	Level V
Haggerty, J. L., Roberge, D., Freeman, G. K., & Beaulieu, C.	2013	*Annals Of Family Medicine, 11(3), 262-271*	Experienced continuity of care when patients see multiple clinicians: a qualitative metasummary	Identify measurable elements that recur over a variety of contexts and health conditions as the basis for generic measure of management continuity from the patient perspective	Metasummary of qualitative studies	33 studies	Three authors independently coded extracts to identify themes. All studies were critically appraised using a scoring grid for qualitative articles.	- Continuity of care is experienced as security and confidence, which includes: coordination and information transfer between professionals, knowing what to expect and having contingency plans provide security. Information transfer includes information given to the patient, especially to support an active role in giving and receiving information, monitoring, and self-management.	LIMITATIONS: metasummary design limited to findings considered important or significant by study researchers and may miss minor findings; this study ended with studies published in mid-2007 and several more recent studies would meet eligibility for inclusion.	Level V

Ireson, C., Slavova, S., Stelrenkamp, C., & Scutchfield, D.	2009	*BMC Health Services Research, 9(163)*	Bridging the care continuum: Patient information needs for specialist referrals	Describe the patient's information experience as they managed the transition from their referring physician for the first visit to a specialist physician for a particular condition	Cross-sectional	250 patients selected from 50 hospitals in 45 states	Structured telephone interviews with patients who had experienced a referral to a specialist for the first visit for a chronic condition within the prior six months.	- 85% of patients received a good explanation about the reason for the specialist visit from the referring physician. 26% felt unprepared about what to expect. - 90% thought the referring physician gave a good-to-excellent explanation about the reason for the referral. - 80% expressed satisfaction with the oral explanations about their diagnosis and prognosis. 25% of patients received no written information from the referring physician about their diagnosis (26%) or treatment (29%). Of those who received information, 16% found the quality of information lacking. - Overall, preparatory information was adequate, but the specific information needed was lacking. - Patients who received all the information needed from the referring doctor had significantly higher satisfaction with the quality of information for self-management compared to patients who received no information.	- This study did not address the perspectives of the referring or specialist physicians; thus, the method of information exchanged between providers is unknown. LIMITATIONS: Sample not random of all US patients, only those served by the National Research Corporation's hospitals	Level VI
Kheirkhah, P., Feng, Q., Travis, L., Tavakoli-Tabasi, S., & Sharafkhaneh, A.	2016	BioMed Central Health Services Research,16(13)	Prevalence, predictors, and economic consequences of no-shows	This study investigated the extent of no-show and factors such as hospital size, gender, and age that may affect it. Additionally, the effect of implementing different methods on reducing no-show rates were calculated	Retrospective cohort study	Retrospective review of information for a 12-year period.	Part 1: no-show data for the last 12 years (1997-2008) in 10 main clinics. Part 2: all no-show data between 2006-2008 were extracted and analyzed for statistical and economical analysis	- Mean no show rate was 18.8% (24%) in 10 main clinics. - The mean no-show rate decreased from 18.17% to 16.96% for 4 consecutive years with reminder-letter system - The average no-show rate in the 10 clinics decreased from 16.3% in 2008 to 15.2% in 2009 with the implementation of a centralized phone system.	Study results are generalizable	Level IV
McLean, S., Booth, A., Gee, M., Salway, S., Cobb, M., Bhanbhro, S. & Nancarrow, S.	2016	Patient Preference and Adherence 10, 479-499	Appointment reminder systems are effective but not optimal: Results of systematic review and evidence synthesis employing realist principles.	This study explores the effectiveness of reminder systems for promoting attendance, cancellations, and rescheduling of appointments across all healthcare settings and for particular patient groups and the contextual factors which indicate that reminders are being employed sub-optimally	Systematic review of quantitative and qualitative evidence	31 RCTs	Three inter-related reviews of quantitative and qualitative evidence Review 1: development of a conceptual framework to provide understanding of context and mechanisms that influence reminder effectiveness Review 2: Systematic Review Review 3: synthesis informed by realist principles to explain elements that influence reminder effectiveness	Consistent evidence that reminder systems improve appointment attendance. Only 1 RCT did not show a significant reduction in non-attendance 3 RCTs showed that personal phone reminders significantly increase patient cancellation and rescheduling rates (17%-26%)	STRENGTHS: strong study combining SR and evidence synthesis; review informed by realist principles	Level I

McLean, S., Gee, M., Booth, A., Salway, S., Nancarrow, S., Cobb, M. & Bhanbhro, S.	2014	Health Services and Delivery Research, 2(34).	Targeting the use of reminders and notifications for uptake by populations (TURNUP): A systematic review and evidence synthesis	This study aims to explore the differential effect of alternative types of reminders (written and automated) for scheduled health service encounters for differential segments of the population on fulfilled or rescheduled appointments, substitutions, and satisfaction.	Systematic reviews of quantitative and qualitative evidence	31 RCTs and 11 systematic reviews	Three inter-related reviews of quantitative and qualitative evidence, involving a review of conceptual frameworks of reminder systems and adherence behaviours, a review of the reminder effectiveness literature and a review informed by realist principles to explain the context and mechanisms that explain reminder effectiveness	- Evidence consistent that reminder systems are effective at reducing non-attendance at appointments. - Timing of reminders, between 1 and 7 days prior to the appointment, has no effect on attendance Reminders promote cancellation of appointments	- Included RCTs represented a wide range of population types, intervention, comparison and outcomes. - Thus, increase in confidence of the findings	Level I
McMullen, M. & Netland, P.	2015	*Clinical Ophthalmology, 9, 513-516.*	Lead time for appointment and the no-show rate in an ophthalmology clinic.	Determine if there is a correlation between the time in advance an appointment is scheduled and the no-show rate	Cross-sectional study	51, 529 ophthalmology appointments	Appointment data retrieved for a 12-month period. Reminder phone calls and appointment letters sent to all patients prior to appointment. Appointments that met inclusion criteria were analyzed	- Average no-show rate was 21.7% and 6.6% for resident- and faculty-clinic. - No show rate increased as time in advance an appointment was scheduled increased - Lead appointment time of 0-2 weeks resulted in no show rate of 9.1% and 2.4% for resident- and faculty-clinic - Lead time for appointment of 6 months resulted in no show rate of 38.3% and 6.9% for resident- and faculty-clinic.	LIMITATIONS: study did not assess the effect of actual implementation of a short-term appointment scheduling strategy; influence of telephone or letter reminders on follow-up rates not evaluated	Level VI
Parikh, A., Gupta, K., Wilson, A.C., Fields, K., Cosgrove, N.M., & Kostis, J.B.	2010	*The American Journal of Medicine, 123(6), 542-548*	The effectiveness of outpatient reminder systems in reducing no-show rates.	Understand characteristics of patients who miss their appointments	Prospective, randomized, parallel design clinical trial	3 appointment reminder groups: STAFF (n=3266), AUTO (n=3219), NONE (n=3350)	- Patients were reminded of their appointments by either telephone reminder (STAFF), automated reminder (AUTO), or not reminded (NONE). - On arrival to appointment, every patient was given a 4-question survey	- No show rate of new patients overall was significantly higher than of established patients (17.7% vs 15.9%) - No-show rates for patients in the STAFF, AUTO, and NONE groups were 13.6%, 17.3%, and 23.1%. - Cancellation rates in the AUTO and STAFF groups were significantly higher than in the NONE group ($p < .004$). - Patients found appointment reminders helpful	LIMITATIONS: there was a difference between the number of call attempts and call time in STAFF and AUTO groups; multiple appointments on same day reduces the chance of no-shows	Level II

Pirotte, M.J., Buckley, B.A., Lerhmann, J.F., & Tanabe, P.	2014	*Journal of Emergency Nursing, 40, e1-e9.*	Development of a screening and brief intervention and referral for treatment for ED patients at risk for undiagnosed hypertension: A qualitative study	Determine characteristics of an intervention that would persuade patients to follow-up with a primary care physician for further blood pressure (BP) evaluation, and encourage ED clinicians to provide a screening, brief intervention, and referral for treatment (SBIRT) for patients with elevated BP with no known history of HTN	Qualitative study	9 physicians, 8 nurses, 8 patients	Recorded individual interviews with ED clinicians and patients	- Major barriers to patient attendance and follow-up: time constraints and patient-specific factors. - Physicians considered an electronic reminder as a potential facilitator. - Patients reported family support and information about complications of uncontrolled HTN would increase the chance of completing follow-up appointment	LIMITATIONS: study conducted at 1 center	Level VI
Pourhabib, S., Chessex, C., Murray, J., & Grace, S.	2016	*Journal of Health Psychology, 21(4), 468–482*	Elements of patient-healthcare provider communication related to cardiovascular rehabilitation referral	Study objectives: 1. describe patient-Health Care Provider (HCP) discussions regarding cardiovascular rehabilitation (CR) from multiple perspectives. 2. Identify elements of the patient-HCP interaction which distinguished between patients who were referred to CR versus those who were not.	Observational, prospective study	60 HCPs, 50 patients	- Patients and HCPs were audio recorded when interacting. After the patient-HCP dialogue had been recorded, patients were asked to complete a self-report survey. - CR charts were audited 2 months later	- Some patient-reported perceptions of the discussions were significantly related to CR referral. Patients who perceived greater encouragement from their HCPs to to go to a class to help manage their cardiovascular disease, and those that perceived their HCP more strongly conveyed their health behaviour will influence their condition, were significantly more often referred to CR.	LIMITATIONS: study does not examine the effect on patient follow through with the referrals made; small sample; results may not be generalizable; participating patients and HCPs may not be representative of all HCPs; no blinding	Level VI

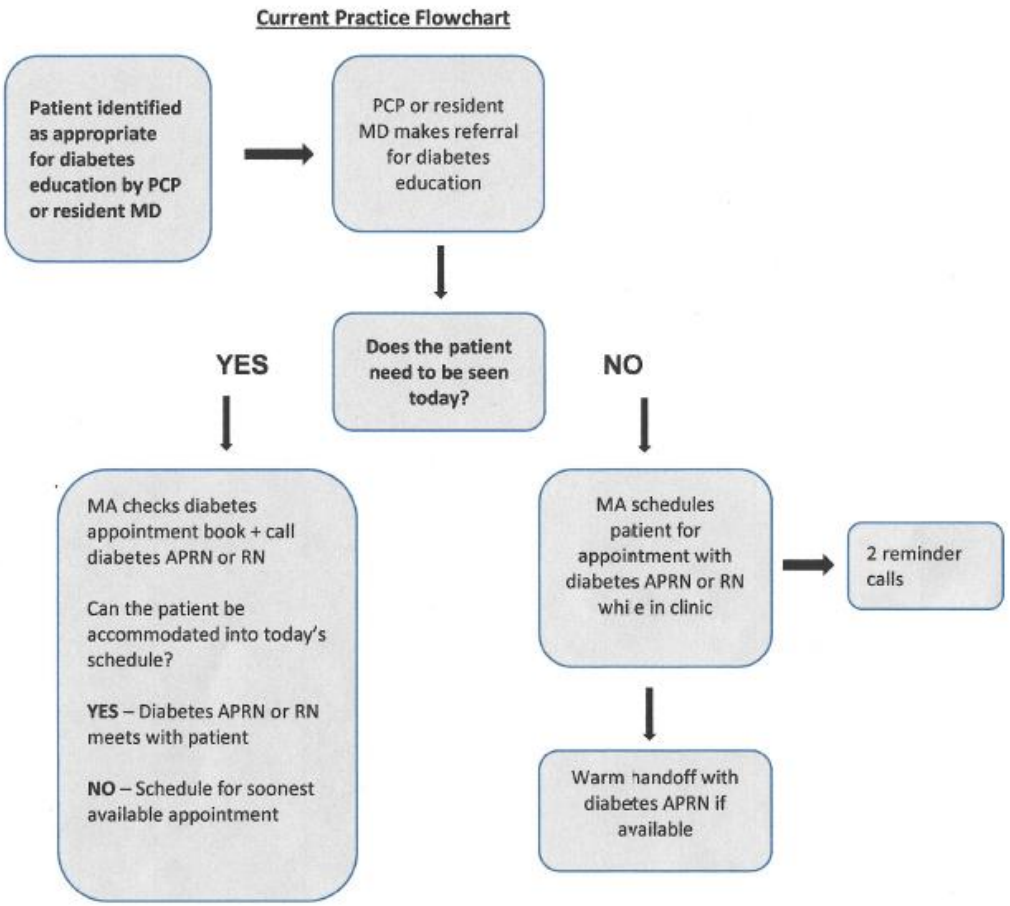
Woods, R.	2011	Nursing Economic$, 29(5), 278-282	The effectiveness of reminder phone calls on reducing no-show rates in ambulatory care.	Determine the effectiveness of daily reminder phone calls on reducing no-show rates in the ambulatory care setting	Literature Review	N/A	- A log was kept, which detailed telephone reminders and the result (e.g., patient answered, no voicemail, number disconnected, etc.). - Another record tracked how many patients cancelled and rescheduled their appointments. - Reminder calls monitored September 2010 through February 2011. - Mailed reminder letters were monitored January and February 2011.	- Most common reasons for missed appointments: forgetting, no transportation, no means of cancelling appointment, unable to miss work, childcare issues. Patient reports of feeling better or worse than when the appointment was scheduled are other reasons for appointment no shows. - Telephone reminder calls over a 6-month period reduced no-show rates by 50% from 8% to 4%. - Reminder letters over 3 months reduced no-show rates by 29% from 8.5% to 6%. - Telephone reminder calls 1 day prior to scheduled appointments significantly increased keeping of appointments. EFFECTIVE STRATEGIES FOUND TO REDUCE NO SHOWS: automated reminder calls, personal daily reminder calls, reminder letters, providing transportation, charging patients for missing an appointment, overbooking the providers schedule	- This study does not describe the literature review methods or how many studies were included.	Other: Literature Review
Zeber, Pearson, & Smith	2009	Primary Health Care, 19(2)	Analysis of health appointment no-shows	Better understand appointment no-shows in context with patient health priorities	Descriptive study	No-shows (n=354) staff interviews (n=14) patient interviews (n=55)	- Examination of clinic appointment records and patient data to observe no-shows, supplemented by interviews to elicit clinic and patient perspectives. All data was extracted during a six-week period in Spring 2002.	- No show rates ranged from 26-36%. Significant contributing factors: insurance, licensure, appointment type, confirmation call status, day of week, age. - 42% of missed appointments resulted when patients did not receive a confirmation call. STAFF INTERVIEWS: patients place little importance on preventive services; confirmation calls and scheduling future appointments immediately after a visit help to reduce no shows. **Recommendations: Creative methods to provide education about appropriate preventive care. PATIENT INTERVIEWS: transportation difficulty was most commonly reported for missed appointments. Other common reasons included: forgetting appointment, "feeling better," believed the appointment was 'not important.' Patient suggestions: offering shuttle service, expand clinic hours, minimising waiting room delays, consistent reminders	Two factors most significant predictors of appointment failure: reason for visit and completion of confirmation call. Limitations: short time frame, possible narrow, non-random patient sampling	Level VI

Author(s)	Year	Journal	Manuscript Title	Research Question	Study Design	Sample	Data Collection	Findings	Comments	Level of Evidence
Agency for Healthcare Research and Quality [AHRQ].	2017	N/A	*Warm handoff: Intervention.*	N/A	Authority opinion	N/A	N/A	- A warm handoff is a transfer of care between two members of the health care team, where the handoff occurs in front of the patient and family. - This strategy allows patients and families to engage in communication and the opportunity to clarify, correct information, or ask questions.		Level VII
Cohen, D., Balasubramanian, B., Davis, M., Hall, J., Guun, R., Stange, K.C.,…Miller, B.	2015	*Journal of the American Board of Family Medicine, 28, S7-S20*	Understanding care integration from the ground up: Five organizing constructs that shape integrated practices.	To provide empirical evidence on key organizing constructs shaping practical, real-world integration of behavior health and primary care to comprehensively address patients' medical, emotional, and behavioral health needs.	Longitudinal study	19 practices in the U.S.	Data collection entailed several processes: collection of documents; report of diary entries; field observation; conduction of semi-structured interviews; administration of survey to one person at each practice; development of tracking sheet for data.	- 5 organizing constructs underlying varying integration approaches. - 4 of 5 constructs utilized warm-handoffs in practices to transition patients	LIMITATION: Little data regarding warm handoffs provided	Level IV
Horevitz, E., Organista, K., & Arean, P.	2015	*Psychiatric Services, 66(8), 824-830*	Depression treatment uptake in integrated primary care: How a "warm handoff" and other factors affect decision making by Latinos.	Identify predictors of Latino patients' decision to follow through with referrals to depression treatment in an integrated primary care setting, including type of referral (a "warm handoff" from a primary care provider to a behavioral health care provider or a prescribed referral)	Retrospective cohort study	431 patient medical records	2 phases: Phase 1 - Medical chart review of patients between the ages of 18 and 65, who had PHQ-9 scores of 9 or higher. Data abstracted, deidentified, and recorded in an Excel spreadsheet by a research assistant blinded to the study's aims. Phase 2 - semistructured qualitative interviews conducted following purposive sampling	470 (31%) of Latino patients received a warm handoff versus a prescribed referral. English-speaking Latino patients were four times less likely to attend an initial visit within two months of a referral if they received a warm handoff rather than a prescribed referral.	LIMITATIONS: study findings not generalizable, limited to one population; validity of certain variables in warm handoff limited with chart review; small qualitative sample	Level IV

Author(s)	Year	Communication in the referral process	Scheduling interventions to reduce wait times	Telephone Reminders	Other
Agency for Healthcare Research and Quality [AHRQ].	2017	X- Warm Handoff			
Ansell, D., Crispo, J., Simard, B., & Bjerre, L.	2017		X - Open access scheduling		
Bell & Bryant	2013	X			
Cohen, D., Balasubramanian, B., Davis, M., Hall, J., Guun, R., Stange, K.C.,…Miller, B.	2015	X - Warm Handoff			
Cox, Oliveira, Lahham, & Holland	2017	X			
DuMontier, C., Rindfleisch, K., Pruszynski, J., & Frey III, J	2013		X - Double booking and change in schedule	X	
Forrest, C. B., Shadmi, E., Nutting, P. A., & Starfield, B	2007				Assisting patients to schedule appointment
Ghisi, G., Polyzotis, P., Oh, P., Pakosh, M., & Grace, S	2012	X			
Haggerty, J. L., Roberge, D., Freeman, G. K., & Beaulieu, C.	2013	X			
Horevitz, E., Organista, K., & Arean, P.	2015	X - Warm Handoffs negatively affected rate of appointment attendance			
Ireson, C., Slavova, S., Steltenkamp, C., & Scutchfield, D.	2009	X			
Kheirkhah, P., Feng, Q., Travis, L., Tavakoli-Tabasi, S., & Sharafkhaneh, A.	2016			X	X - Reminder letter
McLean, S., Booth, A., Gee, M., Salway, S., Cobb, M., Bhanbhro, S. & Nancarrow, S.	2016			X	
McLean, S., Gee, M., Booth, A., Salway, S., Nancarrow, S., Cobb, M. & Bhanbhro, S.	2014	X	X	X	X - Reminder letter
McMullen, M. & Netland, P.	2015		X	X	X
Parikh, A., Gupta, K., Wilson, A.C., Fields, K., Cosgrove, N.M., & Kostis, J.B.	2010			X	
Pirotte, M.J., Buckley, B.A., Lerhmann, J.F., & Tanabe, P.	2014	X			
Pourhabib, S., Chessex, C., Murray, J., & Grace, S.	2016	X			
Woods, R.	2011		X	X	
Zeber, Pearson, & Smith	2009	X		X	

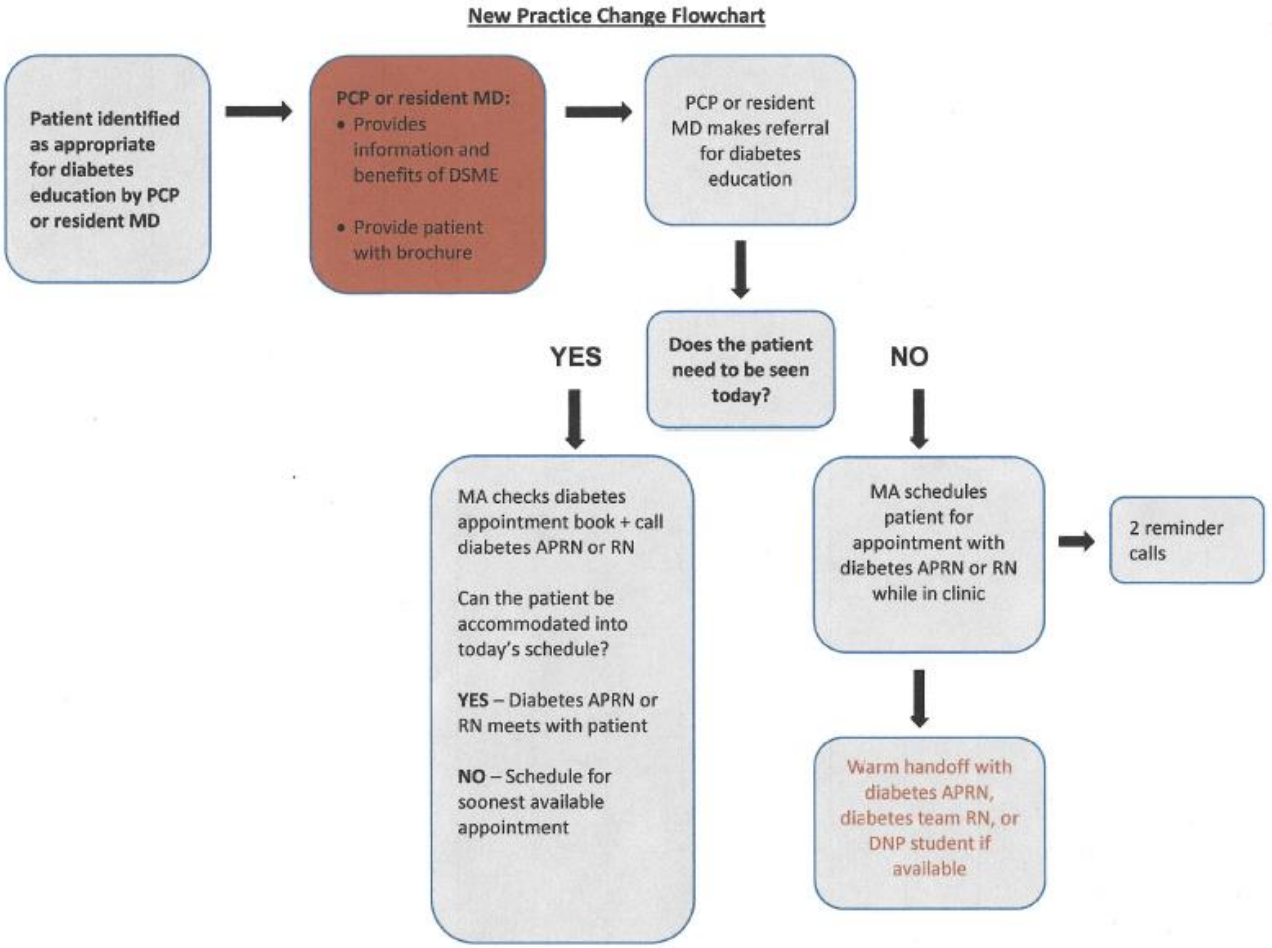
Appendix B

Current Referral Practice Algorithm



Appendix C

Modified Referral Practice Algorithm



Appendix D

Diabetes Self-Management Education Brochure

What participants are saying...

"Very interesting to know that you are not alone."

"Everyone was very helpful and understanding to our needs and goals."

Validated and valet parking provided

About Us

Our diabetes program is recognized by the American Diabetes Association as a provider of quality diabetes education.

American Diabetes Association.

Our Mission

To continue the mission of the Queen's Medical Center to fulfill the intent of Queen Emma and King Kamehameha IV to provide in perpetuity quality health care services to improve the well-being of Native Hawaiians and all the people of Hawaii.

Questions?

Contact the Diabetes Nurse Practitioner
Phone: 808-691-4970
1301 Punchbowl St.
Honolulu, HI 96813

THE QUEEN'S MEDICAL CENTER

Queen Emma Clinics

Your appointment is on:

Date _____

Time _____

With _____

DIABETES SELF-MANAGEMENT EDUCATION

THE QUEEN'S MEDICAL CENTER

What is Diabetes Self-Management Education?

Diabetes education teaches the basic skills and knowledge to help people successfully manage diabetes and improve quality of life

Benefits

- Diabetes education can help you manage your diabetes, reduce or prevent complications, and take control of symptoms
- Diabetes education taught by a Certified Diabetes Educator
- Covered by Medicare and most health insurance plans
- Ongoing support following completion of diabetes education

What can I learn from Diabetes Self-Management Education?

- ✓ How diabetes affects the body
- ✓ Controlling blood sugar levels
- ✓ Managing medications
- ✓ Exercise & fitness tips
- ✓ Nutrition & healthy eating
- ✓ Preventing & delaying complications
- ✓ Stress Management, healthy coping
- ✓ Problem solving
- ✓ Living well with diabetes

Education provided as:

- A group diabetes class
- Individual counseling

ASK YOUR DOCTOR FOR A REFERRAL

Group Diabetes Education

- Meet with others who have diabetes and the same concerns
- Enjoy learning through games, activities, and support conversations
- Food demonstrations provided
- Take home tools and recipes from each class to help manage diabetes
- All graduates are eligible to attend a monthly diabetes support group
- Ask the questions you want answered
- Weekly, 3-hour classes

Appendix E

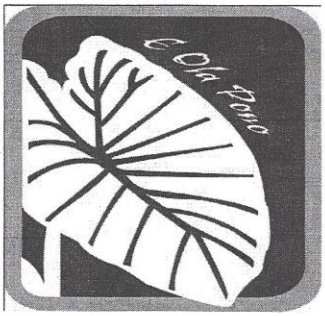
PCP Referral Tracking Sheet

Attending Provider_____

Patient	Warm Handoff Completed?	If yes, with who?	Attended Initial Diabetes Education Appt.?	Enrolled into October Group DSME class?	Graduated from group DSME program?	Notes
	☐YES ☐NO		☐YES ☐NO	☐YES ☐NO	☐YES ☐NO	
	☐YES ☐NO		☐YES ☐NO	☐YES ☐NO	☐YES ☐NO	
	☐YES ☐NO		☐YES ☐NO	☐YES ☐NO	☐YES ☐NO	
	☐YES ☐NO		☐YES ☐NO	☐YES ☐NO	☐YES ☐NO	

Appendix F

Group DSME Sign-In Sheet



Diabetes Group Visit & Education SERIES

at

The Queen Emma Clinics/Women's Health Classroom

TOPIC:_____

Speaker:_____**RN, CDE**

Provider: Dr._____

SIGN-IN

NAME	SIGNATURE

Appendix G

Project Timeline

	2017							2018				
Timeline of All Events	**June**	**July**	**Aug.**	**Sep.**	**Oct.**	**Nov.**	**Dec.**	**Jan.**	**Feb.**	**Mar.**	**Apr.**	**May**
Submit Ch 1-3 to project chair												
Successful Proposal Defense by 8/11/2017												
Brief Key Leaders & Staff		7/5/17 & 7/11/17										
Develop Marketing Products												
Finalize brochure with Creative Services Department												
Prepare flowsheets; data tracking forms												
Develop Database												
Training & Education for QEC stakeholders												
Pilot Project												
Implement practice change												
Evaluate new algorithm w/ survey												
Monthly meeting with stakeholders – • Share evaluation findings												

• Discuss intervention • Give performance feedback												
Data collection: • Referrals • # Enrolled to group DSME												
Data collection: Group DSME												
Enter Data												
Analyze Data												
Interpret Data												
Present Findings to core stakeholders												
Submit Final Write Up to Project Chair												
Submit Final Paper to Entire Committee												
Final Defense											X	
Graduation												X
Prepare & Submit Dissemination Products												

Appendix H

Diabetes Education Referral Practice Survey

Diabetes Education Referral Practice Survey

1. **What percentage of the time do you give the diabetes self-management education brochure to patients?**

   - ○ 0%
   - ○ Less than 20%
   - ○ 20-40%
   - ○ 40-60%
   - ○ 60-80%
   - ○ 80-100%

2. **On average, how much time do you spend talking about diabetes self-management education before referring a patient for diabetes education?**

   - ○ 0 minutes
   - ○ Less than 1 minute
   - ○ 1-2 minutes
   - ○ 3-4 minutes
   - ○ 4+ minutes

3. **How would you rate the overall value of the brochure?**

   - ○ 5 = Excellent
   - ○ 4 = Above average
   - ○ 3 = Average
   - ○ 2 = Below average
   - ○ 1 = Poor
   - ○ 0 = Extremely poor

Comments: _____

Suggestions: _____

SurveyMonkey